THE

Journal of the American Medical Association.

EDITED FOR THE ASSOCIATION BY N. S. DAVIS.

PUBLISHED WEEKLY.

Vol. VIII. CHICAGO, JUNE 11, 1887. No. 24

THE PRESIDENT'S ADDRESS.

CELL ANTAGONISM.

Delivered before the Thirty-Eighth Annual Meeting of the American Medical Association, June 7, 1887.

BY ELISHA H. GREGORY, M.D.,

OF ST. LOUIS, MO.

Obviously, force and matter "make up" the universe. Force implies antagonism, antagonism perpetuates motion. The living cell is the embodiment of nature. Cell antagonism is life. Multicellular organisms represent a community of vital unities. A model organism in equilibrium is health. Cell struggle is the gist of modern pathology. Every organ and every element are vulnerable. The strength of resistance in elements and organs, reinforced by the harmony and precision of coördination, and the vigor of counter-agencies, are the momentous questions.

In seeking for a comprehensive title for my address, I fell upon the two simple words "cell antagonism," which form the foundation of symptomatology and pathology, conjoined with cell changes, the basis of pathological anatomy, embracing at once the universe of life and all the possibilities of life; disease being but one of multitudinous phases of life.

Huxley has likened the body to an army. "Of this army, each cell is a soldier; an organ, a brigade; the central nervous system, headquarters and field telegraph; the alimentary and circulatory system, the comissariat. Losses are made good by recruits born in the camp, and the life of the individual is a campaign, conducted successfully for a number of years, but with certain defeat in the long run." A model organism assumes that every soldier is a stalwart; every organ, a body of stalwarts with corresponding machinery of coördination and precision, all alike concerted and vigorous to meet the myriads of counter forces, many of which are too cunning for our ken, but ever ready to take advantage of the least failure of our strength, to penetrate our vitals. This force of vital resistance forms the basis of therapeutics, this "vis mediatrix naturæ" will be always the indispensable auxiliary of the physician, without which ally abandonment of the art would be inevitable.

The morphologist distinguishes two classes of elements within the organism. One class represents the fixed cells, cells which occupy the fortifications within the inter-cellular substance; the other class provides for the formation of new tissue, and represents the standing army, sometimes called embryonal substance. Before Cohnheim, our knowledge of the mobile elements—the mobilized army—of the body, was nothing; now most of the literature relating to neoplasm is or has become obsolete. Now coagulable lymph is impossible without the white corpuscles. Organizable fluids have vanished. Through the ingenuity and industry of the great German pathologist a revolution has been worked in medical thought. The study of the mobile elements of the body—the relatively independent elements—promises much. We can almost see daybreak in pathology, a dawn before the coming light which is to illuminate some of the dark places of this most intricate subject. Already leucocytes substitute fibrin. The latter is the product of the former. Wherever there is localized impairment of nutrition referable to irritation, or defective maintenance of nutrition, the result of inherent weakness, there the leucocytes concentrate, feast on the devitalized structures, and thereby develop into a tissue replacing that which they have consumed. When the surgeon wishes to dispose of an adventitious structure—a cyst, for example, in the connective tissue, he lowers the vitality by over-stimulation—irritation, when he confidently expects the leucocytes to congregate and destroy the cyst, substituting a granulation tissue, which in time becomes scar tissue. Now an organizable fluid as the essential product of inflammation, cells playing a passive part, is a thing of the past. Now cell potency, cell subtlety, and cell antagonism constitute the pith and marrow of medical science. There was a period in the history of pathology when all the neoplasia sprang from the tissue cells; now the place and destiny of the cell tissue is fixed. When the tissue elements yet contain some undifferentiated protoplasm, proliferation is possible, otherwise not probable. The mobile cells constitute the mobilized army; the great coördinating centres assemble them at any moment, ready to antagonize hurtful agencies. Irritation always provokes a concentration of the white cells. Irritation means injury. It may be simple or specific. Either way it is a signal for moving the army in solid phalanx to confront noxious agencies, and the combat is hotly contested till victory or discomfiture.

Inflammation, the keystone of medical science, the standard process by which all other pathological conditions are measured, is only to be explained on the theory of cell antagonism; it is practically a struggle between irritant bodies and white blood-corpuscles.

Foreign bodies are invariably invaded by leucocytes, their swarming having for its object to repel or render inert the offending cause. Observations directed to the white cell have been followed by an inspiring increase in our knowledge of the vital properties of cells in general. The quality of spontaneous motion once accepted, the idea that the cell played a passive part quickly disappeared, and in its stead came the conception of autonomy, the fact that the cell nourished itself, is not nourished, that the cell specialized food for its own purposes, actually breaking up compounds and adapting the products to its own growth and development; strikingly illustrated by an independent form of government, for example, the government of the United States. A great statesman has said ours was a "government of the people, by the people and for the people." Cells live of themselves, by themselves and for the whole body. The cells make the central government. The coördinating machinery is formed by the cells, and the cells are in their turn centralized and harmonized by this power. The tissue elements are in direct continuity with the centre, but it is otherwise with the floating, wandering cells; yet their behavior gives evidence of their concern for the well being of the entire organism. Again, the free cells take into their substance the most refractory substances, digesting solid bodies; sponges and green plants yielding to their digestive and assimilative processes. Observations the most patient and trustworthy on the lower vegetables have demonstrated the fact that bacteria have been seen in the substance of amœboid cells; others have been seen pursuing bacteria, ultimately capturing and destroying them. Throughout the whole animal kingdom mesoderm cells use their ingestive power for destroying micro-organisms. Further, this property seems to be utilized for the removal of larval organs. Colorless corpuscles present the same appearances and have similar properties and the same mode of origin in the entire range of living beings. When the irritant or harmful agency is particularly obdurate, white cells exhibit a very strange habit of throwing out processes which unite with similar processes from neighboring cells, until a considerable mass of protoplasm is formed by their confluence, constituting a giant cell. Thus an army of giants may be improvised on occasions of extreme emergency; for example, when the tail and gills of the tadpole are to be swept off, this powerful division is ready for the Herculean task.

Apply these facts to the inflammatory process in mammals. Suppose a foreign body lodged, that moment leucocytes leave the blood-vessels and congregate for the purpose of opposing the intruder. In such diseases as tubercle, leprosy, etc., the giant cells appear, and in their centre—their substance—the specific bacillus is found. Koch found the bacillus anthracis and the bacillus of septicæmia in the mouse, enclosed by white blood cells. We say, with these observations before us, inflammation exhibits a new aspect; cells conquering cells as a process of normal physiology; simply the free cells, the white cells resisting injury, there being a provision not only for concentration, but for increasing their number and augmenting their strength, corresponding to the emergency. A recent authority, Mr. Sutton says: "If we summarize the story of inflammation as we read it zoologically, it should be likened to a battle. The leucocytes are the defending army; their roads and lines of communication, the blood-vessels. Every composite organism maintains a certain proportion of leucocytes as representing its standing army. When the body is invaded by bacilli, bacteria, micrococci, chemical or other irritants, information of the aggression is telegraphed by means of the vaso-motor nerves, and the leucocytes rush to the attack, reinforcements and recruits are quickly found to increase the standing army, sometimes twenty, thirty or forty times the normal standard. In the conflict cells die and often are eaten by their companions; frequently the slaughter is so great the tissues become burdened by the dead bodies of the soldiers in the form of pus, the activity of the cells being testified by the fact, that the protoplasm often contains bacilli, etc., in various stages of destruction. The dead cells, like the corpses of soldiers that fall in battle, later become hurtful to the organism they in their lifetime were anxious to protect from harm, for they are fertile sources of septicæmia and pyæmia, the pestilence and scourge so much dreaded by operative surgeons. The analogy may seem to some a little romantic, but it appears to be warranted by the facts."

Just here the question obtrudes, are the action which follows mechanical, chemical and thermal injuries, and the action caused by vital injuries alike inflammatory processes? In the one, that resulting from physical causes, the nutrient processes are not disturbed, simply increased. In the other, that resulting from vital causes, the cell processes are disturbed, thwarted and vitiated. It seems unfortunate that the action which succeeds to traumatism should be confounded with that which succeeds to specific germs. The nutrient changes come into vigorous play after an ordinary injury, altered in one particular only, viz: the presence of a palpable neoplasm, which substitutes the structures doomed by the injury. The addition of new material is invisible in ordinary nutrition, growth and maintenance for example, the substitution being atomic. When a structure is destroyed bodily, as in traumatism, the substitution is corpuscular, therefore palpable. It is certainly perplexing to assume, as does Sir James Paget, that a visible neoplasm is produced by inflammation, but its development is impossible till after the withdrawal of the inflammation. To get rid of confusion, though we do not emerge from error, is to make a step towards truth. The full effect of traumatism is immediate and complete; it cannot increase itself, therefore its effects are always limited and within the possibility of estimation, for the reason that cause and effect are in precise correspondence; besides antiseptics do not influence the changes in any particular. On the other hand, the most extensive and severe injuries of vascular parts, involving bone, joints, the great cavities, etc., are possible without producing inflammation, provided antiseptic precautions be taken. When such com-

plication ensues, it is a wound accident, not a wound incident, and the result of infection. There is no disturbing factor in the process incident to repair; no waste products. If pus is found, it is the result of the intrusion of some noxious agency, some contagion, some pestilence; in short, a specific cause.

If it be agreed to call the action inseparable from ordinary injury, physiological repair, the term inflammation is limited to the series of events referable to a vital agency, which until very recently has eluded detection. A specific agency determines a class of diseases as distinctive and definite as the living creatures studied in natural history. Cell antagonism after physical injury is simply a substitution, through the development of mobile cells, of the tissue which has been spoiled. The fixed elements multiply and develop in the expansion and perfection of the several structures of which they are components, but take no active part in the process of repair after injury. After the perfection of the body, the factors favoring proliferation and those which inhabit it must be in a state of balance. In functional hypertrophy, the balance is towards the side of proliferation. On the other hand, in non-functional hypertrophy, the problem is not so simple; the balance is disturbed towards proliferation by some mysterious agency. How strikingly different when the cell antagonism is with a vital injury; here cell mysteries clash. The bacteria enter into conflict with the mobile and fixed cells, but it is not possible to know how the conflict is carried on. Certainly a series of disturbances ensue in the normal metabolism of the elements. The functional, formative and nutritive activities, which are the expressions of cell life, must be altered; their vigor, perhaps, lessened; and their susceptibilities modified. Exceptionally their life is enfeebled or extinguished. The issue of a bacterial affection is either the death of the patient, or the destruction and elimination of the bacteria. It follows that this disturbance of cellular activities, is always at the bottom of morbid symptomatology; and observations have shown that disease of this kind, successfully withstood, leaves the elements in a peculiar insusceptible condition, insuring an immunity, almost or quite complete, against a fresh invasion of the same or kindred bacteria. This modified susceptibility was practically understood by Jenner. Pasteur, resuming and systematizing the great Englishman's work, successfully modified cell forces, rendering them harmless by cultivation, and sending them on the important mission of destroying the natural proneness to the deadly assaults of the uncultured cells. Whilst we may despair of ever understanding the essential nature of vitality, the study of the causes which regulate life, and their subordination to conditions which may be determined, has lead the way to the grandest achievements of recent times. Pasteur and Lister are the great apostles of modern practical thought.

Huxley has suggested that it may be possible to introduce into the economy a molecular mechanism which, like a cunningly contrived torpedo, shall find its way to some particular group of cells and cause an explosion among them, leaving the rest untouched. Pasteur's cell mechanisms exceed the conception of the great scientist, for they cunningly change the vital qualities of the elements without destroying them. May we not look forward for some great advance in therapeutics in the direction to which Pasteur's genius points, by the study of cell antagonism. Certainly vital subtilties may best cope with vital subtilties. Study of the conditions in which infective agents arise, by ascertaining the circumstances which limit or facilitate their diffusion, has already raised surgery to a proud preëminence. With therapeutics it is otherwise, as it is doubtful whether the new facts have yielded the slightest increase of power against the diseases of mankind. Let us not despair. Knowledge must come first, then wisdom brings its practical application. The study of cell possibilities, their readiness and energy in rendering inert noxious agencies, whether introduced from without or arising from within, exhibiting an antagonism at once potent and direct, rather tends to dampen one's therapeutic enthusiasm. The thoughtful student sees nothing abnormal in disease. To be sure there is a physiological emergency, but there is no disorder in the cell processes; rather the perfection of order. If a physical or chemical cause intensifies the cell changes, in other words, determines the physiological emergency, every cell movement is direct, purposive and efficient, ending only when the intruder is ejected, encysted or accommodated. On the other hand, if the offense be a vital one, a living cell, a microphite, the spectacle is that of one living creature preying upon another, a declaration of the first law of nature, not an enemy, but an intruder struggling for self preservation, simply a physiological fight for life. Can we hope an ideal tonic for cell antagonism, such as would innervate the cells on one side and enervate them on the other, the "Old Chestnut" "prevention is better than cure" is not yet worm-eaten.

Cell antagonism implies a struggle. The duration of the struggle is determined by the quality of the irritant and the strength and resources of the antagonists. Acute inflammation is a sharp and decisive action; chronic inflammation is slow and indefinite. There are two strikingly important chronic conditions, viz: the interstitial inflammation and the infective granulomata, interesting alike to the physician and the surgeon; both are alike disastrous, the one, interstitial inflammation, destroying by cicatrical contraction; the other, infective granulomata, by stopping at the fibro-blast stage, retrogression replacing development. The quality of infection and the failure to develop beyond the stage of granulative tissue is the exact condition as illustrated by tuberculosis, syphilis, lupus, etc., in contrast with which is fibrosis of the liver, cirrhosis, fibrosis of the kidney, Bright's disease, fibrosis of the brain, sclerosis, interstitial inflammation, destroying the tissue elements by strangulation, and infective granulomata by contamination.

Again, the two varieties of inflammation referred to declare that the quality of the irritant determines the effect of the inflammation, the interstitial variety being caused by physical agency, and the infective

by a vital one. Cells antagonize physical causes without losing any of their vital qualities. Not so when cells antagonize vital causes. When cells are pitted against cells they may be despoiled of their highest quality, as in the infection granulomata they have parted with formative activity. In short, the knowledge that pertains to the presence of a vital irritant, epitomizes all that has been taught of infective disorders. The symptomatology and pathology of this class of diseases is but the life history, the play of cell activities, metabolisms and catalysis of antagonizing organisms, as likewise the knowledge pertaining to the presence of a foreign body or physical irritant, is the knowledge in brief of fibrinoses in general of that entire class of disorders known as interstitial inflammations. A persistent irritant—injury—with its attendant concentration of leucocytes, their inevitable development and ultimate transformation, the history of the capsulation of a foreign body, whether it be animate or inanimate, is the history of cirrhosis of the liver, fibrosis of the lung, morbus Brightii, atrophy of the heart, atrophy of voluntary muscles in general, sclerosis of the brain and bones; in short, diffuse capsulation. Some disseminated irritant, say alcohol, determines a sclerosis of the liver, and how? Every particle of alcohol being a foreign particle, having its capsule, it follows that capsulation is as uniformly distributed as the cause. An artisan inhales fine particles of steel or other foreign material and fibrinosis of the lung is the consequence. The irritants of gout and rheumatism are lodged in the kidney, the interstitial tissue of the organ increases, and in the end strangulates the tubules and malpighian bodies, resulting in shrinking and total disorganization of the organ, constituting Bright's disease. Like changes occur in the heart; co-incident with the development of the interstitial fibrous tissue is atrophy of the muscular substance, substituting a fibrous induration for its normal structure. A similar change in the voluntary muscles occurs in the curious disease known as pseudo-hypertrophic paralysis, chiefly afflicting children. The connective tissue between the muscular fibres increases so much, that the muscles affected may exceed their normal size three times. Later, however, the new tissue shrinks, and the contractile material of the muscles is spoiled. The condition of sclerosis in bones corresponds to cirrhosis of the liver, and Bright's disease of the kidney. In the nerve centres the interstitial tissue—neuroglia—takes on the same chronic over-growth, strangling the nerve strands and cells, giving rise to the most singular and complicated nervous phenomena. The changes thus induced are recognized by the general term sclerosis. If it involves the fascicules of Burdack and the column of Goll, locomotor ataxia results; if the medulla, bulbar paralysis, etc.

We have purposely avoided reference to diathesis, as also to the precise neurological relationship of cells, not because we deny their influence, but because too little is definitely known. On the contrary, the behavior of cells relatively to irritants, is well understood. The presence of a foreign body is at once and directly resisted by the leucocytes; a zone of inflammation, its destruction, transportation or capsulation, even parasites which resist the death-dealing assaults of the leucocytes, are at last imprisoned in cases of fibrous tissue.

There yet remains for our consideration a mysterious possibility relating to cell life, of great practical moment, viz: that of entering upon a life of independence, separating from the central nervous system "headquarters," disregarding the "field telegraph," oblivious to the morning "drum-beat," and wholly ignoring the restraining and directing influence of environing structures. We have learned that however much irritation may affect the vital qualities of cells, their fidelity is always preserved, there being no sign of disaffection, the army ever intact, the fealty of the soldiers supreme. Physical causes—traumatism—may crush or impair the tissues, but the cells come to the rescue with all vigor and directness. The prolonged presence of bacteria may impair the forces of the cells, enfeeble and extinguish them, but as long as life lasts their efforts are in harmony with the purposes of the organism. Thus it appears that alienation is not possible through the agency of irritation, however intensified, modified or prolonged.

The question constantly obtrudes: is alienation possible to a mature element, to an element that has assimilated itself physiologically as well as anatomically, with the surrounding tissues; taking part in its functions; concurring and co-operating in all the processes of the economy? This question seems to have confronted Cohnheim, when his ingenuity suggested the embryonal hypothesis, viz: that the tumor germ was congenital; that there were in the mature body embryonal elements and tissues not utilized in the elaboration of the normal structures—latent, embryonal rudiments; small embryonal cells so diminutive as to elude observation, inactive perhaps, till some exciting cause awakens activity. Is not an embryonic element in a mature organism an alien? Is it not already an independent element? Are not patches in the skin, pigmented moles, islands of cartilage in mature bone, congenital angioma, etc., independent structures, already tumor germs, congenital rudiments of tumors? Accept the hypothesis of the great German pathologist, and the problem of tumor etiology is almost solved; it remains only to find the exciting cause; the predisposition is inherited; irritation, simple or otherwise, may be nearly allied to the awakening impulse. The difficulty is to reconcile cell antagonism with the proposition, this doctrine includes: the idea that all discordant bodies are treated as intruders, either ingested, transported, or covered up. We can conceive the possibility of the existence of an inoffensive tissue or element, one that simply draws its nourishment from adjacent tissue, without any serious disturbance of their normal metabolism. We would gladly adopt the theory of Cohnheim, which ascribes the origin of tumor neoplasms to persistent germinal rudiment. Certainly it has much to recommend it. Countless latent embryonal structures, relatively independent, are tolerated by the organism, remaining inactive till

favored by some concurrent event, the nature of which is incomprehensible, when they may grow according to their bent. Is it not quite as possible there may be similar, relatively independent elements, ready when stimulated to multiply independently? Congenital angiomata often grow without definite limit; pigmented moles, black, slightly raised patches in the skin, with which all are familiar, are composed of tissue exactly resembling sarcoma; always suspicious because of their disposition to proliferate independently. It is most difficult to believe in the infidelity of covenant cells, of sundering the compact which unifies the organism. Emancipation seems almost out of the question. We must not only believe that dependent benignant elements become independent, but indifferent, vicious, infective. In short, the elements of the host, become the elements of a parasite—a parasite so vigorous, corrupt and wicked as to destroy its source.

The painful part of the retrospect of a year is that which recalls those who have been taken from us. The past year has had a very special grief for our association in the death of one of our ex Presidents, Dr. William Owen Baldwin, who died at his residence, and the place of his birth, Montgomery, Alabama, May 30, 1886. He was among the early members of the American Medical Association, and its President in 1869, presiding at New Orleans. His address on that occasion will be remembered as abounding in Christian and patriotic sentiments, eminently befitting the good and great physician. The Committee charged with the organization of the Ninth International Medical Congress, which meets at Washington City this year, had named him as one of its Vice-Presidents. Dr. Baldwin was remarkable for his culture, the eloquence of his speech and the beauty of his diction, and will be remembered as an imposing figure in the history of this great Association.

I need scarcely remind you, gentlemen, that we shall have with us, after a few weeks, the medical men of all nations. Soon we shall extend the hand of friendship to those with whom we have heretofore been united in interest and sympathy in the cause of science. We know that everything is being made ready and that success is assured. Again, you will join me, I know, in the declaration, that a hearty American welcome awaits their advent, and that the Ninth Meeting of the Great Congress will be memorable in the history of its organization.

ORIGINAL ARTICLES.

CONTRIBUTIONS TO THE CLINICAL HISTORY OF SYPHILIS.

BY H. GRADLE, M.D.,
OF CHICAGO.

This paper is based upon the clinical records of a number of syphilitic affections. They all present one or more unusual or exceptional features, which, in the author's opinion, make them worth reporting. The interest which such a record of cases can claim is that of contributing to the certainty of diagnosis and prognosis.

CASE I.—*Syphilitic Iritis—Amaurosis of both eyes of central origin—Recovery under specific treatment—Fatal progress of the brain disease.*

Mr. G., a farmer, 50 years of age, was brought to my office practically blind. About two months ago the sight of the left eye began to fail gradually, while since six weeks the right eye had become sore and weak. He has been in nearly total darkness for a week. He is a person of low intelligence and hence difficult to examine. His wife claims that for the past week or so his mind has been less clear than formerly, and that at times he talks irrationally. Until recently he was in good health. Questioned closely he states that 18 years ago, before marriage, he contracted a chancre followed by an eruption. But his history does not seem reliable. He is more positive, however, that a year and a half ago he acquired a venereal sore. This was followed by an eruption during several months.

Present condition, Dec. 29, 1885.—The patient is somewhat emaciated and feeble. He has no motor or sensory paralysis or other nervous disturbance, all reflexes are normal. He is, however, of slow understanding and his memory seems unreliable. But while in the office he presented no unmistakable evidence of mental derangement. The post-cervical glands are enlarged. There is a mixed pustular and squamous syphilide on the face and on the trunk. He has no headache and never had any. He sleeps well.

The *left* eye is pale, the pupil of medium width and immobile. Light thrown into the eye with a mirror is not recognized with any certainty. Opthalmoscopically the media are found clear and the optic disc and retinal vessels normal. There is a narrow circular comus around the disc with ill-defined outline, but the refraction is practically emmetropic. The *right* eye shows a moderate ciliary injection. The iris is discolored and the pupil narrow and closed by iritic adhesions. There is no pain only a feeling of soreness, in other words simple specific iritis. The movements of the hand can be dimly followed at one foot distance, which degree of sight is less than would correspond to the optic conditions. Moreover the field of vision as tested by throwing light into the eye with a mirror is considerably and uniformly restricted.

The patient received an eye-water of atropin (1 per cent.) and cocaine (2 per cent.) for the right eye. Mercurial ointment was to be rubbed into different parts of the skin twice daily, and one gram of iodide of potassium to be taken four times a day. The proper hygienic directions were of course given in regard to rest, diet and cleanliness of the mouth.

Two days later he returned improved. The right eye was less sore and the pupil a trifle larger. Light was more vividly perceived, and could even be recognized by the left eye.

Jan. 4, 1886, the patient walked in without guidance. Left eye had a vision of $\frac{2}{60}$. Its field was

normal in extent. Of colors, red and green were recognized at once—blue with some hesitation, but yellow and orange were mistaken for blue. The pupillary reflex was normal. Ophthalmoscopically no change. The iritis of the right eye had ceased, though the pupil had not yielded any further to the mydriatic. He could follow the hand at eight feet distance, but the right visual field was still restricted. The color perception was not as certain as with the left eye, red being almost deficient. The patient had still the former dull mental condition, being somewhat dazed on trying to recollect, and his answers were not strictly to the point. But this may have been his normal state of intelligence. His wife states that he has talked more rationally at home.

Jan. 7.—There was some further improvement. On account of slight fœtor of the breath, the mercurial ointment was now dropped, but the other treatment continued. He did not return until Jan. 21st when the left eye appeared normal in all its functions with V. $\frac{20}{35}$, while the sight of the right eye corresponded sufficiently to the optic condition of the partially closed pupil, the hand being seen about 12 to 15 feet off. The right visual field was nearly normal in extent, being limited somewhat by the narrow pupil. Colors were correctly named if seen in strong light. The patient did not return after this date, and it was subsequently learned that his eyes had remained well until his death in June, 1886. His physician, Dr. Doepp, attributed the death to brain disease on account of the progressive mental impairment, but no autopsy was made.

The peculiarity of this case consists in the double-sided amaurosis. There is no special interest either in the occurrence of the iritis or in the history of his syphilis otherwise. Whether this was a re-infection, after acquiring the disease some seventeen years previously, I could not decide definitely on account of the patient's low grade of intelligence. The blindness which had increased steadily since six to eight weeks until it had become absolute in the left eye and nearly so in the right eye, yielded so rapidly to specific treatment that no doubt seemed to me proper as to its syphilitic origin. The disease must have been intra cranial since the ophthalmoscope showed no intra-occular lesion in the left eye. There were no symptoms like paralysis of any of the cerebral nerves which could aid in locating the syphilitic process. It must have been either very diffuse or have involved the optic chiasm, since both eyes had suffered to a nearly equal extent, and recovered at about the same rate. But had the syphilitic inflammation existed in the membranes next to the optic chiasm ordinary clinical experience would lead us to expect a descending optic neuritis, which within six weeks generally reaches the intra-occular end of the nerve. Since the left pupil did not respond to light during the height of the disease, the optic nerve fibres must have been affected somewhere peripherally from the reflex centers—the corpora quadrigemina. At any rate the process was not of a kind causing increased intra-cranial pressure, like a gummatous tumor; for neither headache nor choked disc existed. It was more like a gummatous meningitis. For although but 18 months had elapsed since the infection syphilitic disease of the membranes of the brain has been known to occur at such an early period.[1] Whether the patient died through a relapse of this lesion cannot be decided from want of data.

CASE. 2.—*Gummatous iritis; Recovery under specific treatment. Neuro-retinitis of the other eye, presumably of intra-cranial origin, occurring immediately after nearly two months of specific treatment. Ultimate recovery.*

Mr. St., 38 years of age, was seen March 26, 1886, for a sore eye troubling him since ten days, which had been shamefully neglected by a general practitioner. Misguided by the Doctor's statements the patient did not understand the gravity of his disease, especially as the pain was but moderate. He had been in good health for many years with the exception of a short spell of malaria the previous year. Eighteen years ago he had had a chancre and was treated anti-syphilitically. He did not remember ever having had any secondary symptoms. He is married and has two healthy children.

Present Condition.—The right eye is normal in every respect with V. $\frac{20}{20}$. The left eye which has become more painful in the past two days shows slight ciliary injection and is somewhat tender to the pressure. The iris is slightly discolored, the pupil narrow and irregular, and its rim partially adherent to the capsule. In the substance of the iris on the nasal side of the pupil and close to the pupillary rim there is a greyish red prominent nodule of irregular surface, about two millimetres in diameter. The ophthalmoscopic reflex is very faint on illuminating the pupil. Fingers are counted at eight feet and the visual field is normal.

He was ordered to take salicylate of sodium one gram every three to four hours, iodide of potassium one gram four times per day, two daily inunctions with mercurial ointment, and to drop into the eye a solution of atropine and cocaine every two hours.

Under this treatment a progressive improvement began at once. The pain having ceased within a few days, the salicylate of sodium was soon dropped. Within ten days the nodule in the iris had disappeared. The pupil enlarged moderately, especially on the temporal side, while on the nasal side, next to the former site of the nodule, the pupillary rim had become fastened to the capsule of the lens by a broad synechia. The ciliary injection and irritation diminished steadily. But it was not until the 12th of May that the eye could be said to be entirely free from inflammatory action. During the month of May three minute spots of deposit were formed on the rear of surface of the cornea, although the inflammation was steadily subsiding. Vision had by this time reached $\frac{20}{20}$. The fundus, now visible with the ophthalmoscope, appeared normal, with the exception of slight indistinctness of the edges of the papilla, and veiling of the vessels as they pass from the papilla on the retina. It seemed to me probable that some optic neuritis had accompanied the disease in the iris, especially as the deposits on the pos-

[1] Comp. Heubner, Syphilis of the Brain in Ziemsen's Cyclopædia.

terior surface of the cornea generally indicate some involvement of the entire uvea in the inflammatory process.

The specific treatment had been continued all this time until the end of May, the use of mercury having been suspended whenever the mouth appeared suspicious, while acne pustules and iodine catarrh had repeatedly forced the patient to leave off the iodide for several days. Altogether about sixty inunctions of two to three grams of mercurial ointment had been made. Under the use of pilocarpin once a day or once in two days in a dose of 2 to 25 centigrams, the sight cleared towards the end of May up to $\frac{20}{60}$, at which level it has since remained stationary.

Mr. St. returned June 8th, complaining of severe headache since about a week, coming on in short spells. It was limited to the front part of the head, and generally one-sided, especially on the left side, but sometimes changing to the right. The eyes had not suffered in any way. As the patient attributed the headache to his constipation, he was ordered to take aloes and podophyllin, and to report at once unless relieved. Pressed by business, he stayed away until June 23d. The headache had only diminished gradually in spite of the proper action of his bowels. There was still a feeling of pressure in the head, which any excitement would intensify into a severe one-sided headache. He felt at times dizzy, and most of the time dazed. Since the previous day the sight of the right eye had failed to an alarming extent, while both eyes felt heavy.

The left eye showed no objective or functional change. The right eye, however, had but a visual acuity of $\frac{20}{100}$. The visual field and color sense were normal, but the perception of brightness reduced. There was no anomaly visible about the eye except with the ophthalmoscope. The media were clear, but the edge of the papilla was no longer recognizable, there being an opaque infiltration extending from the disc into the retina in all directions through a distance about equal to the papillary diameter. Within this zone the vessels were veiled, the arteries of normal size, the veins somewhat distended as compared with the other eye. On the temporal side of the disc there were a few minute spots of hæmorrhage. The papilla was not œdematous. Towards the periphery the retina and its vessels were sharply defined. Active treatment was at once begun, consisting in the use of salicylate of sodium, iodide of potassium and mercurial ointment. Nevertheless, vision had sunk to the recognition of fingers at three feet distance two days later. But the patient mentioned that the periphery of the visual field appeared clearer, and that the blur seemed to him more a shadow over the objects he looked at. In other words, there existed a positive central scotoma. No ophthalmoscopic change had occurred.

In view of the fact that the patient had previously had malaria, and the possibility of some malarial poison persisting, quinine, 0.3 three times per day, was now substituted for the salicylic acid. From this time on an improvement both subjective and objective began. But this could scarcely be attributed to the quinine, for the drug was only continued through three days at that time. Subsequently quinine was again prescribed several times whenever the condition remained stationary for a few days, but without exerting any further influence on the rate of recovery. It was not until July 20 that the disease could be said to have terminated.

The final result was a perfect visual field without central scotoma, and vision $\frac{20}{30}$, while ophthalmoscopically the retina and vessels were clear except at the edge of the papilla, where some opacity remained. The specific treatment had been pursued steadily with the exception of some respites on account of mercurial or iodine annoyance. During the early part of July an iodoform ointment, made up with lanolin, was rubbed into the forehead for a few days, without any noticeable influence. Pilocarpin did also not accelerate the rate of progress, but steam baths seemed to hasten the clearing of the sight. The patient has remained well up to date, and is able to use his eyes satisfactorily.

This case illustrates the long period of latency of constitutional syphilis. Eighteen years had elapsed since the occurrence of the chancre, and secondary symptoms were not remembered, in fact denied definitely. Perhaps this latency was the result of a vigorous anti syphilitic treatment, which had been kept up for some months at the time. Gumma of the iris is not of very frequent occurrence. When the patient was first seen the diagnosis rested between tuberculosis of the iris and gumma. The disappearance of the nodule under ten days of anti-syphilitic treatment decided this question definitely. The use of salicylate of sodium in this case was based on my own experience with the drug. Inflammation of the iris or ciliary body, whatever be its cause, reacts to salicylic acid in one of three ways. In less than half of the cases I have seen there was no action at all. In about half of my patients with iritis and cyclitis, the pain and intensity of the irritation was controlled to a greater or less extent by the salicylate without the disease being shortened in course. This is quite often true of iritis of syphilitic origin. A small number of cases of iritis, and especially of cyclitis, are unmistakably and rapidly cured by this agent.

But with the absorption of the gumma the inflammatory symptoms did not cease. For nearly five weeks the eye was still reddened and sensitive to the light, and the optic media not perfectly clear. The deposits which appeared towards the end on the internal face of the cornea, indicated nutritive disturbance throughout the middle tunic of the eye, for in simple plastic iritis such deposits are not formed. There may have been during this time a slight optic neuritis, since the edge of the papilla has never presented the sharply cut appearance which it has in the normal eye. It is well known that a mild neuritis does not necessarily reduce sight very much.

The neuro-retinitis of the other eye might have been an independent non-specific disease. But the prodromic symptoms preceding it during three weeks, viz: headache, dulness in the head, and dizziness, suggest a descending neuritis, starting from the cranial cavity, with perhaps some involvement of the

membranes at the base of the brain. Whether this was of the nature of a gummatous inflammation is an open question. The cerebral symptoms certainly diminished in intensity *before* constitutional treatment was resumed, which fact speaks against specific origin. On the other hand, it is contrary to usual experience to find a syphilitic inflammation originating at this late period of the disease immediately after some six weeks or more of thorough specific treatment. The neuro-retinitis improved steadily after the specific treatment was resumed, but not as promptly as I would have expected of a purely syphilitic inflammation.

The conclusion seems to me not unreasonable, that the optic neuritis was a sympathetic affection starting from the inflammation in the left eye, and the primary disease would in that light appear to me as a complication of a gummatous deposit in the iris with secondary irido-choriditis of non-specific nature.

(*To be concluded.*)

LACERATION OF THE CERVIX UTERI.

BY J. HENRY CARSTENS, M.D.,

PROFESSOR OF OBSTETRICS AND CLINICAL GYNECOLOGY, DETROIT COLLEGE OF MEDICINE.

When the granite monument which may be erected over the future grave of T. A. Emmet, or the marble urn which may hold his ashes, if his body should be cremated, have long yielded to the slow but certain action of the atmosphere and disappeared from view, then the name of Emmet will still be known, and reverently mentioned in connection with laceration of the cervix. Until the last man and woman have disappeared there will be children born, and as long as children are born, tears of the external os will occur, as neither the art and science of the obstetrician nor the *vis medicatrix naturæ* can prevent them in all cases. Laceration occurs in cases left entirely to nature, as well as in the hands of the most careful and experienced accoucheur. We must start with this idea clear in our minds, that the occurrence of laceration is no proof of poor midwifery or meddlesome interference, although manual efforts to hasten dilation, or the use of the forceps before complete opening of the external os, are a fruitful cause of tears. It is claimed that abortions are also etiological factors. It seems to be the opinion of the majority of the profession that immediate repair is of little avail, as union seldom takes place, and is only indicated to stop the hæmorrhage when large vessels have been torn.

The symptoms of laceration of the cervix are usually those of some uterine disease: backache, headache, leucorrhœal discharge, bearing-down pains, etc. The symptoms vary to some degree, whether the laceration has cicatrized or not; in the latter more or less purulent discharge takes place; in the former this is not the case, and often misleads the patient and physicians in thinking there is no uterine disease.

The raw granulating surface has been called an ulcer, erosion, etc., until Emmet showed that it was a tear, and how it could be repaired. Lacerations are a frequent cause of subinvolution and displacement of the womb, the latter not subsiding until the proper treatment of the former.

The most troublesome cases are those in which no granulating surface exists, but cicatrization has taken place. Very many of these cases do not require any treatment, as no symptoms are produced. Such cases give the easy-going physician a chance to say that cervical lacerations are of frequent occurrence and do not amount to much, as every woman has a tear if she has given birth to a child. Of course this is partly true; some women have lacerations which have cicatrized and produce no symptoms, but who wants to meddle with such cases? No one ever thinks of treating or operating on cases of that kind. But when we find cases of flexions, versions, descent and enlargements, due to a subinvolution caused by a tear, no pessaries or support, no injection or application will cure the case; only an operation can.

The reflex symptoms produced by cervical laceration are many: such as headaches, spinal irritations, palpitation, neuralgia, disturbances of the stomach, liver and kidneys. These do not come on shortly after the tears occur, but some years later. I believe the cicatrix gradually contracts and compresses some nerve filaments. The cicatrix is often not sensitive to the touch. During the menstrual period the symptoms are generally more marked, varying according to the complications which exist. The sympathetic symptoms and reflex disturbances produced by cercical laceration are almost innumerable, and for that reason the real cause of a woman's illness is often overlooked, and she is treated for almost every disease from acholia to zona.

We must also remember that nearly all observers have called attention to the fact that uterine cancer generally commences at a point of laceration of the cervix, and that we have a right to assume that a long-continued ulcerating tear in the cervix may develop into a malignant growth. Therefore, all cases of cervical laceration which have not healed should be repaired, and those cases which have cicatrized, and produce secondary effects and reflex symptoms, should also be operated on. In my experience, many cases of repeated miscarriages are caused by tears, especially if the latter are deep. Many women anxious to have children can be made happy by an operation for laceration of the cervix. We often meet cases in which women have had a severe labor during the first confinement. The child was born dead, laceration occurred, and no other child was carried to full term, labor always occurring at the third to sixth month. This variety of sterility can be cured.

The operation consists in simply paring the edges, and sewing the raw surfaces carefully together. Considerable discussion has lately taken place on the necessity of removing all cicatricial tissue. Some have even performed a second operation when the cicatricial plug has not been thoroughly removed the first time. For the purpose of making a clean cut and getting away the cicatrix at the angle there is no better instrument than Skene's hawkbill scissors, although a knife and scissors can also be used, espe-

cially the latter. The sewing can be done with various kinds of needles which have been devised for that purpose, and with silver wire, silk, catgut, or silkworm gut. As the uterine tissue is very firm and it is difficult to get a needle to pass through, I have had Mr. Kuhlman, of Detroit, make a needle with a corkscrew curve on a short handle. This enables

one to put the sutures just where he likes, and fit the raw surfaces most accurately. I have tried the various sutures. Silk prepared as proposed by Skene is very good, but requires removal after union has taken place. Silver wire is good, but difficult to remove unless the patient is again put under an anæsthetic. When silver wire is used, I find it the best plan to put four or five perforated shot on the wire, and compress the last one only. This enables one to remove the wire readily by simply cutting it be-

tween the last two shot, pulling all the shot off the wire and grasping the long ends of the latter, simply pulling them out. Catgut is very good, and need not be removed; which is a great advantage. Still, catgut is often unreliable, and is very difficult to tie so that it will hold. I have therefore lately tried silkworm gut, and find it most excellent, if a large size be used and kept thoroughly aseptic. It need not be removed, although it takes a long time to become absorbed. If the circular artery be cut, it may be necessary in some cases to ligate it, but generally the sutures will stop the hæmorrhage.

The operation for laceration of the cervix is therefore very simple: Cut out a wedge-shaped piece, and remove all cicatricial tissue; carefully adjust the raw surfaces with silkworm gut sutures. I believe in chloroform as an anæsthetic.

After the operation the patient is kept in bed for a week. Use carbolized douches twice a day; but this is not necessary, as I have often paid no attention to the patients except to see that no inflammation developed, and then examined them in five or six days, and if union was perfect, allow them to sit up; in a few days they would follow their ordinary vocation.

The operation is not dangerous unless chronic or subacute peritonitis or cellulitis exist, when no operation should be attempted until after all symptoms have disappeared; and even then great care is needed, as the uterus must be very carefully handled, and not much traction made. In these cases, also, the after-treatment must be more strict; the patient must be kept quiet and on a light diet; in ordinary cases I allow a full diet.

My conclusions are:

1. All lacerations which have not cicatrized should be repaired, even if no severe symptoms are produced, as they might be the starting-point of cancer.

2. All cases which have cicatrized and cause sequelæ, such as subinvolution, displacements, with the various reflex symptoms, should also be operated on, great care being taken in these cases to remove all cicatricial tissues.

3. The wedge-shaped piece can be removed with a knife or scissors, the latter to be preferred.

4. Silkworm gut or catgut is to be preferred, although silk or silver wire may be used.

21 Macomb St., Detroit, May 11, 1887.

MEDICAL PROGRESS.

Strophanthus in Heart-Disease. — Dr. J. Hutchinson, Physician to Anderson's College Dispensary, Glasgow, says: I have administered the drug in twelve cases of heart disease; nine were functional and three organic, and I have much reason to be pleased with the success of the treatment, and with the amount of relief I gave my patients.

On looking over my notes I find two cases of mitral disease, in one of which there was a loud murmur, both obstructive and regurgitant. The patient was a woman, aged 45, in whom the prominent symptoms were harsh, hacking cough occurring in paroxysms, dyspnœa, and even at times orthopnœa, palpitation, and œdema of feet and legs. The pulse was intermittent, with a regular irregularity, and beating 90 to the minute. Strophanthus was given in half-drop doses at first, and was gradually increased until she was taking 2 minims three times a day. Almost from the first dose taken an alteration in the sufferings of the patient was observed. The heart-sounds were firmer and steadier; the pulse-beats, though still irregular, were not so fast; cough was much less troublesome, and the palpitation was neither so frequent nor so violent. Along with this there was a copious increase in the renal secretion, which soon relieved both the visceral engorgement and the œdema in the feet and legs. In fourteen days she felt so well as to be able to return to her household duties, In the other case of mitral disease the symptoms were much the same, but not nearly so severe. The same dose was given, and the effect was as satisfactory and rapid.

Another case of aortic stenosis in an old lady, aged 60, who had for years been a martyr to chronic cough, palpitation, and the other symptoms attendant upon stenosis of the aortic orifice, received great relief from a one-minim dose of the drug. In this case palpitation was very violent, the pulse was rapid, and there was extensive passive congestion of both lungs. Œdema of the feet and legs was also present in a marked degree. Under the influence

of strophanthus the pulse became slower and firmer, the congestion in the lungs lessened day by day, and a copious diuresis soon made an alteration in the œdema. The palpitation was trifling compared to what she previously suffered, and her cough was much relieved.

In the other nine cases in which I administered the drug I could find no trace of a murmur, and the purpose for which the medicine was administered was to allay in some measure the turbulent palpitation of which these people complained. In seven of these cases the palpitation seemed to be dependent upon dyspepsia; remedies were given for that condition. Strophanthus was also used in the hope of its exerting a calming and steadying influence upon the heart, which in all of them it succeeded in doing.

The remaining two were cases of disordered innervation. The pulse was very rapid and irregular, the heart's action turbulent—so much so that at times the sounds could not be differentiated, but seemed all merged in a confused rumble. Both of these patients were much benefited, and though the symptoms of which they complained the loudest—namely, palpitation—is not banished, they find that it can be kept within reasonable bounds by a timely dose of strophanthus. All the patients expressed the opinion that the drug had a stimulating effect, which, however, soon wore off. Some of them professed to feel beneficial effects ten minutes after taking their appointed dose. The effect of the medicine was rapid, but did not remain long, and at the end of three or four hours required to be renewed. The system I found quickly became used to the drug, and to get the amount of benefit the dose required to be gradually increased. In prescribing it I combined it with some bitter infusion, and I never failed to get the physiological action, though Dr. Higham Hill remarks that it is important not to dilute it except at the time of using. I have never seen sickness or gastric irritation produced, such as we meet with sometimes after digitalis. The preparation I used was tincture of the strength of 1 in 8 prepared by Messrs. Thos. Christie & Co., London.—*British Medical Journal*, May 7, 1887.

METHYLAL.—Methylal, which was last year investigated from a physiological and therapeutical point of view by Personali, has since been experimented upon by Nicot, and more recently by two Russian physicians—Professor V. K. Anrep and Dr. M. Motrokhin. The results obtained by the latter of these observers are described in a "preliminary communication" in the *Vrach*. In frogs hypodermic injections of from 0.2 per cent. to 0.3 per cent. of the animal's weight produced more or less profound anæsthesia, wh ch, however, quickly passed away. The lethal dose for frogs was found to be 0.8 gramme. Reflexes were weakened, and with large doses temporarily abolished. Thus, after giving a frog 0.3 gramme of methylal, irritation of the central end of the sciatic nerve during the period of complete narcosis produced no effect, but when the animal was aroused some reflex activity returned. Irritation of the peripheral extremity of the nerve showed that the drug had produced no effect upon its reflex action. Warm-blooded animals are more susceptible to the effects of methylal than frogs, a quantity equal to 0.25 per cent. of a rabbit's weight throwing it into a deep sleep lasting from one to two hours; with larger doses, loss of coördination in the movements was first observed, then the animal fell on its side, and remained in a state of narcosis for from three to four hours, after which it quickly recovered. The lethal dose was 0.45 or 0.5 per cent. of the animal's weight the irritability of the cortex of the cerebral hemispheres was lowered both by hypodermic injections and by the inhalation of the vapor. Convulsions due to strychnine and picrotoxine in animals subjected to the action of a moderate dose of methylal were diminished in violence, but when the strychnine or picrotoxine was given in lethal doses death was actually accelerated by methylal. Methylal can be employed in the form of vapor for inhalation, or as a liquid for internal administration. When given hypodermically in an aqueous solution of the strength of 1 in 3, it is very painful, and the skin is very apt to slough near the puncture. Dr. Motrokhin does not think methylal is likely to be of use in poisoning by strychnine and picrotoxine, except when only small quantities of these poisons have been introduced into the system. Regarding inhalations, 2 ounces may be inhaled, and only produce in addition to anæsthesia slight headache and dizziness. No experiments seem to have been made with a view to ascertaining the value of methylal as a surgical anæsthetic, but it does not seem to affect the heart's action perceptibly. Professor Anrep noticed especially that the anæsthesia was more marked on the upper part of the body.—*Lancet*, May 7, 1887.

THE PULSE IN MORPHINOMANIA.—At a recent meeting of the Académie des Sciences, MM. B. BALL and O. JENNINGS described certain characteristics of the pulse in morphinomaniacs. The pulse is normal during the period of satisfaction, while the patient is still under the influence of a recent puncture. When he begins to feel renewed craving, the pulse presents a flat elevated surface; this indicates the diminution of cardiac impulse, and explains the sensation of weakness experienced by the patient. The presence of this flat surface is useful in the diagnosis of morphinomania. Treatment should be directed to the stimulation of the heart.—*British Medical Journal*, May 7, 1887.

COMMON SALT IN MIGRAINE.—DR. RABOW, of Berlin, finds that half a teaspoonful or more of common salt, taken as soon as the premonitory symptoms of an attack of migraine begin to show themselves, will frequently cut it short in about half an hour; similar treatment has also proved of service in epilepsy, as was remarked some years ago by Nothnagel: the explanation being probably in both cases that a violent reflex action is set up, [though the reason and nature of this reflex action is not explained].

THE
Journal of the American Medical Association.
PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

SUBSCRIPTION PRICE, INCLUDING POSTAGE.

PER ANNUM, IN ADVANCE.....$5.00
SINGLE COPIES.....10 CENTS.

Subscriptions may begin at any time. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made at the risk of the publishers, by forwarding in REGISTERED letters.

Address
JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 65 RANDOLPH STREET,
CHICAGO, ILLINOIS.

SATURDAY, JUNE 11, 1887.

THE MEETING IN CHICAGO.

At one time it was thought that in view of the early meeting of the International Medical Congress there would be a comparatively small attendance at this thirty-eighth annual meeting. These fears, however, are now shown, as we go to press, to be groundless. As early as Monday evening about two hundred delegates and members were registered, and it is now probable that the attendance will not fall short of fifteen hundred. The programme of the Sections shows that the number of papers and addresses is greater than ever before, being almost double the number last year. So far as can be seen at present all portions of the country are well represented except the extreme West. It will be seen that the President's Address, on "Cell Antagonism," is out of the usual line of such addresses. As a paper on the subject of which it treats it may be said to be complete, and no one can read it without instruction. The Association is to be congratulated that its Sectional work has been still further divided by the creation of a Section on Dermatology and Syphilography.

FOREIGN BODY TREATMENT OF SCANTY MENSTRUATION AND AMENORRHŒA.

With the exception of cases of absent menstruation due to constitutional causes and from some ovarian affections, there are many cases of amenorrhœa, or very scanty menstruation, in which the chief fault seems to be with the uterus. Practitioners know that many of these cases are attended with very distressing symptoms, and that relief is urgently required. The administration of emmenagogues and other drugs in such cases is usually attended by but little success; and that the means at our disposal for treating such cases are very inefficient is shown by the number of drugs and measures recommended.

Many years ago DR. JAMES BRAITHWAITE, of Leeds, after reflecting upon the hæmorrhage caused by uterine polypi, introduced small foreign bodies into the uterine cavity, and left them, when he wished to bring on menstruation or increase its amount. Hot baths, iron, aloetic aperients, and alteration in the diet and habit of the patients, were used at the same time. The most convenient foreign body he found to be a small piece of hempen ligature, doubled several times, knotted, and impregnated with pitch. These were carried up to the fundus and left there. Some success was obtained, but they were generally expelled by the uterus before they had done their work. They were therefore abandoned for a Greenhalgh's rubber stem. This he has found very efficient in a considerable number of cases. The stem is carefully washed in carbolized water, introduced into the uterus a week before menstruation is due, or supposed to be due, and left in position. A hæmorrhage will usually result in a few days; but whether it comes on or not the stem should be left in position. While Dr. Braithwaite has had many successes with this method, he has also met with failures. But the method, in his opinion, is the best and most certain means of bringing on absent menstruation, or for increasing a scanty flow. Wynn Williams' stem may also be used, and it has the advantage that it is not easily expelled from the uterus. Dr. Braithwaite has also made what he calls an artificial polypus, to remain *in utero*.

Dr. Braithwaite reports two interesting successful cases treated by the stem, the record of which may be found in the *British Medical Journal*, of April 30. This method is briefly referred to by a few writers, but it is probably unknown to the majority of the profession.

THE MEDICINE OF THE TALMUD.

Some time ago we published an announcement of DR. C. H. VON KLEIN, of Dayton, Ohio, that he would translate and publish the medicine of the Talmud, provided one thousand copies are subscribed for. We take pleasure in announcing that Dr. von Klein has received subscriptions for about five hundred copies. We make this announcement

with more pleasure since this translation is in a large measure a labor of love. It does not seem to be generally known that the compilation of the Talmud began about twenty-five hundred years ago. The works of Hippocrates, which are generally thought to be the beginning of medical history, were written only three hundred years before Christ. This book will, therefore, add three hundred years to the annals of medical science, if nothing more. While it is true there are within it many "childish and irreverent things" relating to medicine, nevertheless to those who carry not creed prejudice it will give more than history. The hygienic portion will be of benefit to sanitary science. The laws regulating separation of women during their menstrual period will be a revelation to the greater part of the profession, and the medical jurisprudence will add much to modern medicine. Besides the medicine and its collateral branches contained in the *Jerusalem* and *Babylonian Talmuds* with all their *Tosephtos* and *Siphri Medrashim*, much will be embodied from the *Rambam* (Maimonidis) *Yorah-Deah*, *Shulchan Aruch*, *Aien-Jacob*, *Eben Ha-Ezeir*, and from many other works of equal antiquity. Probably not less than three years of severe labor will be required to make the researches and translation; and we therefore appeal to literary men of the profession to subscribe, in order that the work may not be unnecessarily delayed.

SOCIETY PROCEEDINGS.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Ninth Annual Meeting, held in the Hall of the Academy of Medicine, New York, May 26, 27 and 28, 1887.

THURSDAY, MAY 26—FIRST DAY.

MORNING SESSION.

THE PRESIDENT, E. FLETCHER INGALS, M.D., of Chicago, called the Association to order, and read

THE PRESIDENT'S ADDRESS.

In referring to *Intubation of the Larynx*, the history of the operation and a description of the instruments used in the operation were given. The method of operation was then referred to. In 1858 an attempt was made in Paris to treat stenosis by intubation. Seven cases were operated on, and of these five died, and two cases recovered after subsequent tracheotomy. In 1880 O'Dwyer introduced intubation, and gave to the profession one of the most useful operations of modern times. In the after-treatment, while the tube is in position, no liquids should be allowed. Sometimes small quantities of liquid can be taken, but the danger of exciting bronchitis or pneumonia is so great that fluid should be entirely prohibited. The largest tube that can be introduced is the one most likely to be retained. The danger of the tube being forced into the trachea was referred to. In four or six days, in favorable cases, the swelling and false membrane will have so much diminished that the tube will be coughed up finally and need not be withdrawn.

The speaker had performed intubation in twelve cases of diphtheritic laryngitis. In three cases recovery followed. By a coincidence, the cases of recovery were the only ones in which the author had charge of the after-treatment. One case lived eight days and then died suddenly an hour after the tube had been removed. Another lived eight days and then died of pneumonia. Details of the cases treated were given. As a result of his experience, he concludes that the treatment after intubation should be: 1. Prohibition of fluids except by enemata. 2. Some preparation of mercury should be given in large and frequent doses. 3. In case of development of bronchitis or pneumonia, respiratory and cardiac stimulants should be given freely but cautiously.

By correspondence and study of the literature he had collected 514 cases with 134 recoveries. The percentage of recoveries will be greater when more care is exercised in the use of fluids. When medicines fail, no time should be lost in providing for the free entrance of air, either by intubation or tracheotomy. Intubation can be done more quickly, more safely, with less shock to the patient and less objection on the part of the parents. The operator should be prepared to open the trachea if loosened membrane should be forced down into the trachea. When the tube fails to relieve the dyspnœa tracheotomy should be performed, unless there is reason to believe that the latter operation will fail. When membrane is loose in the trachea, no time should be lost in the use of the forceps, which rarely succeed, but tracheotomy should be resorted to. The results obtained by intubation are about as good as tracheotomy at all ages, but apparently better in young children.

DR. CHARLES E. SAJOUS, of Philadelphia, read a

STUDY OF SOME OF THE OBJECTIONABLE FEATURES OF INTUBATION.

The principal objections to intubation, according to the degree of danger, are: 1. The tendency to the obstruction of the tube by fragments of membrane. 2. Crowding down of loose membrane during introduction of the tube. 3. Passage of food into the trachea. 4. Momentary arrest of respiration during introduction of tube. 5. Liability of the tube to be coughed out; and 6, slipping of tube into the trachea. The tendency to obstruction was attributed to the limited diameter of the tube; the crowding down of membrane to the length of the tube; the passage of fluid to the weight of the tube; the liability to be coughed out, to the limited diameter of the tube; and the slipping of the tube to the weight of the instrument and the formation of the head.

The author exhibited instruments on the principle

of the bivalve speculum which were intended to embody the suggestions made above. This tube obstructs the larynx very little, leaving the breathing space almost as great as normal. He also exhibited an instrument intended to remove loose membrane from the larynx. The instrument consisted of forceps which could be protruded into the larynx, by an arrangement in the handle, the required distance, and the membrane grasped.

DR. F. H. HOOPER, of Boston, said that while he had no personal experience with the operation, he had watched certain cases in the Boston City Hospital. Since last October, ten cases of intubation had been operated on, with two recoveries. In one case, the attempt to introduce the tube caused spasm, and tracheotomy was performed. In every case there was immediate relief of dyspnœa. In three cases the tube was coughed up and swallowed.

DR. D. BRYSON DELAVAN, of New York, suggested that feeding with a tube introduced into the œsophagus would overcome the difficulty. This plan can also be used in cases of tracheotomy.

DR. MORRIS J. ASCH, of New York, remarked that there are a few objections which should be brought to the notice of the profession. One of these is that membrane may be crowded down which is very difficult to remove, even by tracheotomy. Another objection is the difficulty experienced by the ordinary practitioner in the removal of the tube.

DR. B. F. WESTBROOK, of Brooklyn, did not think that the weight of the tube is what causes the trouble in deglutition, for the muscles which elevate the larynx are quite strong. It seemed more likely that the difficulty was due to the rigid tube, which holds the larynx open. In normal deglutition the entrance of the larynx is closed.

DR. D. H. CHAPMAN, of New Haven, said that the most distressing symptom after the introduction of the tube seems to be thirst. It would be interesting to study the cause of this. Could it not be relieved by the use of enemata and by baths. It may be occasioned by the use of the mercury, which might be introduced in some other way than by the mouth. The use of pilocarpin, which, even in small doses, causes salivation, might be of service.

THE PRESIDENT said that it is so rare that the tube becomes clogged that it is not necessary to have a skilled attendant. When the tube becomes clogged it is usually coughed up, and, as a rule, it is not necessary to replace it for two or three hours. The attempt to feed these patients through a tube introduced into the œsophagus has been tried in Chicago, but he had not heard any stress laid on this measure.

DR. J. SOLIS COHEN, of Philadelphia, gave a description of a

MODIFIED LARYNGECTOMY.

The operation is applicable to those cases in which the disease is not too extensive, and it has the advantage over complete laryngectomy of leaving the greater portion of the thyroid cartilages undisturbed while the respiratory portion of the larynx is removed. On the cadaver the operation can be performed in two minutes. In disease limited to the interior of the respiratory tube, especially carcinomatous disease, it fulfils every indication that prompted complete laryngectomy. The advantages claimed for the operation were: 1. Rapidity, ease, and comparative safety for the patient. 2. The small size of the wound. 3. The preservation of the attachment of various important muscles and ligaments. 4. The retention of important structures in their normal relation; and 5, a firm natural support is left for the application of any artificial apparatus.

This operation should be performed for complete laryngectomy when not precluded by the extent of the disease.

PRESENTATION OF INSTRUMENTS.

Dr. T. A. DeBlois, of Boston, exhibited a portable apparatus for compressing air.

Dr. E. C. Morgan, of Washington, presented a universal powder blower, which could be used in abscesses of the nose, throat, vagina or rectum.

Dr. Allen, of New York, exhibited an improved form of snare which could be used with one hand.

The following were appointed as the Nominating Committee: Drs. Beverly Robinson, of New York, W. C. Glasgow, of St. Louis, and S. H. Chapman, of New Haven.

AFTERNOON SESSION.

DR. JOHN B. MACKENZIE, of Baltimore, read a paper entitled

THE PATHOLOGICAL NASAL REFLEX—AN HISTORICAL STUDY.

The fact is established beyond doubt that a causal relation exists between diseases of the nasal mucous membrane and other portions of the respiratory tract and many conditions of distant parts of the body. Hay fever can be traced to the time of Galen. The fact that tickling of the nose would arrest hiccough is referred to by Plato. The irritating effects of the odor of flowers were recognized in very early times. Reference was made to the observations of various individuals in regard to reflex conditions due to nasal disease. During the eighteenth century much was written upon this subject.

DR. JOHN O. ROE, of Rochester, read a paper on

HAY FEVER. ANALYSIS OF CASES, WITH RESULT OF TREATMENT.

Up to the last hay fever season, the author had treated forty-two cases. A study of these cases tended to confirm the opinions expressed in February, 1883. Some of these views have been modified. Of the forty-two cases, twenty-six were males and sixteen females. The attacks came on between May 1 and August 1. In all, the active symptoms subsided soon after the appearance of frost. In some cases the hay fever dated from a severe attack of cold. In every instance there was disease of the nasal passages. The location of the sensitive areas is not constant, but they are usually most marked over the areas of greatest hypertrophy. The areas have not been confined to the posterior portion of the turbinated bone, nor especially to the anterior portion of

the turbinated bones. In the majority of cases the septum was as sensitive as the turbinated bones. Thirty-one patients suffered with asthma. But twelve patients had a distinctly nervous temperament, while nine were distinctly phlegmatic.

The plan of treatment adopted is to restore the nasal passages to as near as possible a normal condition, and destroy the sensitive areas. These areas are to be destroyed by cauterization. Deep cauterization has been most effective, while superficial cauterization had no marked effect. The condition of the larynx, pharynx and bronchi must not be overlooked. Not infrequently enlarged tonsils will keep up irritation in the turbinated bones. A neglect to cure a bronchitis may account for a return of the disease.

Thirty-five of these cases have practically been cured. Seventeen have remained exempt for periods varying from one to nine years. Four were not relieved, owing to imperfect treatment, and four have been lost sight of. The following conclusions were presented:

1. All cases of hay fever have the initiatory lesion in a diseased condition of the nasal fossa.

2. All diseases of these tissues induce in the ganglionic centres connected with them an abnormal activity, which is reflected to other organs.

3. The sensitive areas in the nose are not found in any particular portion of the cavity. Nor are there any zones which, when irritated, produce always the same manifestations.

4. The direction in which the irritation is reflected is always in the line of least resistance. Irritation in the same region may be reflected in one direction at one time and in another direction at another time.

5. The disease in the nose may produce disease in other portions of the respiratory tract, which may become independent centres of irritation.

6. The affection recognized as hay fever is due to local irritatives brought in contact with the sensitive areas in the nose.

7. The affection is not *per se* neurotic, nor is the so-called neurotic condition of the person necessary to render a person susceptible to local irritation applied to the air passages. It is not necessarily associated with the nervous temperament.

8. The neurotic condition which is often regarded as the cause of the hay fever, is often the result of the local irritation.

9. By careful and thorough treatment of the disease of the nasal tissue, combined with that of other portions of the respiratory passages below, which have become secondary sources of irritation, we need not fail to cure hay fever.

DR. C. E. SAJOUS stated that at the last meeting he had reported some cases in which the use of the cautery had been only of temporary benefit. He now believed that the failure was due to the fact that the cauterization was only superficial. Since he had employed deep cauterization he had cured the disease.

DR. J. N. MACKENZIE regarded hay fever as a neurosis. That it is a disease of the nose producing reflex symptoms he held was not the fact. Where, in hay fever, disease of the nose is found, the question arises whether this is primary or secondary, or whether it is only an accidental condition. There is, I think, always some more central cause than the affection of the nose. Where the disease is recent, it may possibly be arrested by local treatment, but where the affection is of long standing, he did not believe that simple local treatment of the nose would overcome the difficulty. Last summer, in treating hay fever, he made no application to the nose, and his results were better than ever before. He gave in large doses zinc, nux vomica, quinine and arsenic.

DR. F. I. KNIGHT, of Boston, asked if any of the members have had any experience with diversion of nervous influence in any of these cases? In one case coming under his notice the attack was arrested by the patient breaking his leg. Another patient had the attack arrested after consulting a disciple of mind cure.

DR. W. C. GLASGOW, of St. Louis, thought that the evidence shows that hay fever is not a local affection, but that it is a general nervous disturbance. It is difficult to judge of the influence of treatment, for in the same individual the severity of the attack varies from year to year. He believed that constitutional treatment is an important element in the case.

DR. F. H. HOOPER had regarded hay fever as a neurosis and had treated it in the manner spoken of by Dr. Mackenzie. This accomplishes great good, especially in young children.

DR. J. SOLIS-COHEN thought that the views of Dr. Mackenzie are very nearly correct. Many cases occur in those who are overworked and have resorted to stimulants. These patients are often benefited by rest in the mountains or at the seashore. He had obtained benefit by tonic treatment, modifying the diet, and restricting the use of meat. The more we look upon this as a constitutional affection and the less as a local condition the sooner will we get at the truth. A large number of these sufferers have obstruction in the nasal cavities, but many have no such obstruction.

DR. J. O. ROE considered hay fever as the reflection of some irritation from the nasal chambers, which irritation is produced by some foreign substance coming in contact with the mucous membrane of the nose. Irritation reflected from other situations to the nasal chambers is not hay fever. He thought that Dr. Mackenzie includes some such cases. He had never seen any evidence to show that this was a neurosis.

DR. D. BRYSON DELAVAN read a paper on

THE TREATMENT OF ATROPHIC RHINITIS BY APPLICATIONS OF THE GALVANIC CURRENT.

Some years ago Dr. E. L. Shurley, of Detroit, recommended the use of the galvanic current in the treatment of dry catarrh of the pharynx, and related cases in which benefit had followed its use. He also advocated the same treatment in atrophic rhinitis. There is no disease which is more discouraging to the physician and patient than this of atrophic rhinitis. The author had tried this method of treatment in certain cases. The positive pole of a constant current battery was applied to the nape of the neck,

while the negative pole was applied directly to the mucous membrane by an electrode consisting of a copper wire around which absorbent cotton is wrapped. The strength of current employed varied from 4 to 7 milliampères. In more recent cases of the affection the effect is marked, but even in the older cases the method is not without benefit. The author has found this measure useful in these cases, and reported illustrations. The objection to the method is the amount of time which it requires.

Dr. T. A. DeBlois, of Boston, had applied this treatment in two cases, one of atrophic and the other of hypertrophic rhinitis. In the first cases there was almost complete loss of smell and taste. The applications were made three times a week for six months. Both cases were improved.

Dr. Knight asked what experience the members had with plugging of the cavity of the nose? He had used this measure, and produced relief of the most distressing symptoms. One side of the nose is thoroughly stopped with a piece of absorbent cotton, which is allowed to remain three hours during the morning. It is then removed and the other side is stopped in the same way for three hours in the afternoon.

Dr. Roe had used the plugs of cotton, but with no other effect than to set up irritation. He had used with marked benefit the application of a weak solution of nitrate of silver, 5 or 10 grains to the ounce, the parts having previously been cleaned. This, applied every other day, almost entirely relieved the symptoms.

Dr. Sajous had used in two cases, with absolute relief of the symptoms, the application of chromic acid in a solution made by simply allowing the acid to absorb moisture from the air.

Dr. S. H. Chapman, of New Haven, read a paper on

MYALGIA OF THE PHARYNX AND LARYNX.

He called attention to certain peculiar conditions of the muscles of the upper air passages which occur oftentimes in malarial disorders, and which, on account of their severity, are brought to the notice of the specialist. The muscles most likely to be affected are the pectoral, the muscles of deglutition, and those of the voice.

Dr. F. I. Knight, of Boston, read a paper on

SENSORY AFFECTIONS OF THE THROAT.

The principal experience of the author had been with hyperæsthesia and paræsthesia. In hyperæsthesia the general condition of the patient is, as a rule, not sufficiently considered. The worst cases are alcoholic subjects and those with digestive disorders. These will often yield to withdrawal of the alcohol or regulation of the diet. Astringents are frequently of service. In the cases of paræsthesia which he had seen there had been a feeling of fulness, pressure, burning, globus hystericus, or the sensation of a foreign body in the throat. In these cases there is impairment of the general nervous system. The exciting cause may be some disease of the throat. Fatigue usually exaggerates these sensations. He had never met with paræsthesia of the larynx as the earliest symptom of phthisis, as had been claimed by some observers. The prognosis in most cases of paræsthesia is good if a careful treatment be carried out. The treatment of the neurosis of sensation must be aimed to cure the constitutional vice.

Dr. W. C. Jarvis, of New York, recently saw a man complaining of pain on either side of the tongue which had existed for the past two years. He was suffering from the effects of syphilis, and with the neuralgia of the tongue there was frontal neuralgia and pains in other parts of the body.

Dr. Sajous had seen two or three such cases. In one there was follicular pharyngitis, and although the pathological condition was cured, the pain remained. The pain seemed worse in damp weather, and the gentleman had the habit of bathing every morning in cold water. The history of the case seemed to indicate a rheumatic trouble, and such may have been its nature.

Dr. W. C. Glasgow: Many of these cases he thought were due to malaria, and some to the gouty diathesis. Sometimes the trouble is kept up by a single hyperæsthetic follicle. A reduction of the inflammation will be followed by a subsidence of the neuralgia. Sometimes the source of irritation is found with difficulty. In the rheumatic cases there is usually exacerbation at night. These affections in some cases appear to have a tendency to the induction of melancholia.

(To be concluded.)

SUFFOLK DISTRICT MEDICAL SOCIETY.

Section for Clinical Medicine, Pathology and Hygiene.

Stated Meeting, April 31, 1887.

Dr. F. L. Knight, Chairman.

Albert N. Blodgett, M.D., Secretary.

Dr. F. C. Shattuck reported *four cases occurring in hospital practice:*

TUBERCULAR PERITONITIS; SLOUGHING OF THE UMBILICUS AND FISTULA.

P., æt. 24, entered the hospital June 21. A sister died of phthisis. About a year before entrance the patient began to suffer from attacks of abdominal pain, distension and tenderness, lasting five to ten hours, and relieved by bilious vomiting. These attacks recurred at intervals of about a month. The last was four weeks before entrance; he did not rally from it but felt poorly, lost flesh and strength, and had moderate diarrhœa much of the time. He had no cough or other pulmonary symptoms. Pulse 100. Physical examination showed slight consolidation at the right apex without softening. In the umbilical region a rounded cake-like tumor with irregular surface, four inches in diameter, and apparently covered over by intestine, was felt. On the right side of the tumor and in the right iliac fossa, tender-

ness was marked. Diagnosis; tubercular peritonitis.

July 3. The patient was evidently weaker. Moderate fever was constant with evening exacerbations. The abdomen was more distended, peritoneal crepitus could be felt; night sweats, occasional vomiting, and abdominal pain were noted. The scanty sputum was examined for bacilli with a negative result.

July 14. Several days before this date it was noticed that the skin about the navel was getting red and œdematous. On this date a small perforation took place through which with each inspiration was emitted offensive gas, on deep inspiration offensive greenish fluid; during the act of vomiting this fluid was ejected with force.

July 18. The fistula gradually enlarged, and the patient was transferred to the surgical side.

July 19, and again on the 22d, dejections of normal consistency passed the rectum, the only discharges of any kind through that outlet between the appearance of the perforation and death, which took place July 28, from exhaustion.

Autopsy.—The right pleural cavity was obliterated by old adhesions, a few of which were also found on the left side. The apex of the right lung was thickened, shriveled and dense; on section, numerous small gray tubercles, and some pigmented fibrous tissue were seen. Throughout both lungs there was occasional cheesy patches, a half inch or more in diameter, some of them partially softened, surrounded by deeply injected borders containing miliary tubercles. A fistulous opening through the umbilicus contained a drainage-tube entering the peritoneal cavity partially obliterated by old adhesions. This encysted cavity extended upwards beneath the right lobe of the liver, and downward on the right to the pelvis, containing masses of necrotic fat tissue (omentum), and several ounces of offensive fluid; it communicated with the rectum above the internal sphincter by an opening in the anterior wall one-half inch in diameter. The intestine contained tubercular nodules and ulcerations, chiefly in Peyer's patches. The pathological diagnosis was then as follows: Chronic pulmonary tuberculosis, acute bronchitis, tubercular peri-bronchitis, chronic tubercular peritonitis and enteritis, umbilical fistula, perforating ulcer of rectum. The special reason for reporting the case is the comparative rarity of spontaneous porforation of the abdominal wall in tubercular peritonitis. The seat of the perforation was also somewhat remarkable, the strong fibrous structures of the umbilicus being completely destroyed.

CIRRHOSIS OF THE LIVER; ASCITES ABSENT UNTIL A FEW DAYS BEFORE DEATH.

A widow, æt. 49, entered my service October 9, 1886; she was the mother of nine children, the youngest 13 years old. She had never had any special illness, but had overworked herself from time to time, and been obliged to go to bed several days to rest. The past two or three years these periods of overstrain had been more frequent. About three months before entrance she had an attack of "dysentery" with pain, bloody discharges, and tenesmus. The blood in the stools was quite abundant and persisted for three weeks; during the first week of her illness she vomited blood several times in considerable quantities; she was six weeks in bed. Since she got up there had been no recurrence of hæmorrhage; but the blood loss was not made up and she steadily lost in flesh and strength, and was entirely unfit for any work; nausea and vomiting after taking even small quantities of food, unattended by any pain, had been prominent symptoms. The two days before entrance vomiting was still more frequent, and she again passed blood from the bowels, but this time without pain and the blood in clots. The patient was very anæmic, very slightly jaundiced, and the skin over the neck, arms, and body contained capillary dilatations. The hepatic dulness was increased in width both upwards and downwards, and the edge of the liver was distinctly felt an inch and a half below the ribs; its surface was lacking in smoothness. The abdomen was distended with gas, but no ascites could be positively made out. The spleen was not enlarged. The urine contained a small trace of albumen and a few casts. A very loud systolic souffle was heard over the heart, loudest in the pulmonic area; over the apex a thrill could be felt, but there seemed to be no enlargement of the organ. Diagnosis: cirrhosis.

October 10. Passed a large blood clot and about ℥iii of fluid blood with fæces.

October 11. There was now unmistakable ascites, the liver could no longer be felt, the diaphragm was pushed up, and there was slight œdema of the abdominal wall and feet. The vomiting continued from time to time, but there was no recurrence of hæmorrhages of any kind.

October 14. The ascites had increased rapidly, and caused so much distress that she was tapped. After the withdrawal of the fluid the roughness of the liver surface was distinct, and the contour of the lower edge of the organ could be well made out. Considerable relief followed the tapping, but the patient gradually failed in strength, and October 16, six days after entrance, she died.

A full autopsy could not be secured, but my efficient house-officer, Mr. L. T. Stevens, succeeded in extracting the liver, in two portions, and some of the other organs through the rectum. The heart was normal and showed no anatomical explanation for the very loud murmur heard during life. The lower portion of the ileum and upper part of the colon were full of black, tarry material. The liver was not materially altered in size and was eminently cirrhotic. The spleen was increased in density, though not in size. The kidneys showed moderate chronic interstitial changes. It is a matter for regret that it was impossible to make the autopsy in the usual way. To remove the liver through the rectum it was necessary to cut it in half, and the precise condition of the portal vein and its main branches was thus impossible to make out. The extreme rapidity with which ascites appeared and progressed suggests the possibility of its dependence on thrombosis of the portal vein. The severe intestinal hæmorrhages showed that great portal congestion had existed for some months, and it also seems pos-

sible that in the occurrence of free bleeding is to be found an explanation of the late advent of ascites, the hæmorrhage relieving the stasis.

HÆMOPHILIA.

H., a clergyman, æt. 52, entered the hospital, July 12, 1886, for tonsillar abscess, of which he had had several previous attacks. The first was treated by incision, which was followed by hæmorrhage that did not finally cease until six weeks had elapsed. In a day or two after entrance the abscess broke, and the day after this he began to pass bloody and smoky urine, the source of which the microscope showed to be the kidneys. He reported that hæmaturia had followed each previous attack of parenchymatous tonsillitis, and was also brought on by unusual mental excitement or exertion. In all, he thought he had had as many as 150 attacks. If he kept quiet, and drank large quantities of water, the bleeding generally ceased in five or six days, but if he worked it lasted from twenty to thirty. When a child, slight knocks produced large, black-and-blue, painful swellings, which were slow to subside. When 21 years of age he had an epistaxis which threatened life, but bleeding from this source has never recurred. The tendency to bleed has, he thinks, diminished as he has grown older, but slight cuts are still followed by free and persistent hæmorrhage. No history of hæmophilia in either parent or grandparent could be obtained; all were long-lived. Of his seven brothers and sisters, one brother shows this tendency, and a sister's son exhibited the hæmorrhagic diathesis to a marked degree, finally dying of persistent hæmaturia.

Hæmophilia, like color-blindness and pseudo-hypertrophic paralysis, is transmitted through the females of a family, the females themselves generally escaping. The tendency can thus oftentimes be followed through many generations. My patient is an unusually intelligent man, and the fact that he can not trace the diathesis behind his own generation is one reason for reporting the case.

A CASE OF TETANY(?).

A stable-boy, 19 years of age, of good family and previous personal history, entered the hospital September 30, 1886. He was muscular, well built, and ruddy. He said that for the past year there had been slight, but constant, stiffness of the jaw, which had not hindered speech or mastication, but had been sufficient to give him a constant desire of moving the jaw from side to side, and this had now become a habit. The day before entrance, without any assignable cause or any warning, the stiffness of the jaw increased very much, the hands and forearms became numb and rigid; also the legs, to a less degree. This was soon followed by general tremor. The whole attack lasted some ten minutes. During the attack he had a dull feeling in the back of his head, whence the numbness and stiffness seemed to start. There was no loss of consciousness or disturbance of vision. He had three such attacks yesterday, and two to-day. In the intervals between the attacks he felt perfectly well. On entrance, the patient was in the midst of an attack, and was reported as having a chill. The temperature was 99.4°. By the time the house officer reached him the attack had nearly passed, and his condition was as follows: He was much excited, free from pain, but complained of a disagreeable, indescribable. sensation over the whole body. The pulse was rapid and strong, the breathing quickened. The expression of the face was peculiar, suggesting the *visus sardonicus*. The masseter muscles were hard to the touch; speech was difficult; there was marked stiffness of the arms and hands, the fingers being semiflexed. Efforts to strengthen the fingers encountered resistance, and caused slight pain. The legs were also somewhat rigid.

October 1. I saw him for the first time. During the night he had had an abortive attack. Examination of the internal organs gave entirely negative results. As I finished testing the reflexes, which were not remarkable, an attack came on, preceded, for a few moments, by discomfort slight mental excitement, and forced respiration. Stiffness then came on in the hands, arms, and fingers, which were all semiflexed: the thumbs were held firmly between the first two fingers. The spasm was tonic, with slight tremor at times, and forcible attempts to counteract it caused pain. The mind was perfectly clear, and the patient was positive that he had no real pain, though decided discomfort was caused by the rigidity of the muscles. After fifteen or twenty minutes the stiffness disappeared entirely. Whether this result was furthered in any way by the inhalation of a little ether, I cannot say. He was put on a full dose of bromide and chloral, every three hours, for several days. Slept nearly all the time, and had no more attacks, either spontaneously, on testing the reflexes and the electrical reactions, or during pressure on the brachial artery and nerve. There was no increased electrical reaction of the muscles, the current being passed through the nerve.

October 9. The patient was discharged, apparently well in every respect, except that slight stiffness in the jaw persisted. The diagnosis seemed to involve the consideration of only three affections: tetanus, hysteria, and tetany.

The feature of the case, which is chiefly suggestive of tetanus is the stiffness of the jaw, but this had been present for a year; this fact, with the absence of rigidity of the neck and back muscles, and the transitory character of the attacks, with entire freedom from symptoms in the interval, warrant us in excluding tetanus. Hysteria is not so easily, and I do not feel that it can be positively excluded, especially as Dr. Weir Mitchell to whom I very briefly stated the case, thought it probably of that nature. But, apart from the attacks, there was nothing whatever about the boy to suggest hysteria. He dreaded the attack, as indeed, do hysterical women oftentimes, for that matter. During the attacks he was perfectly reasonable, and he was glad to be discharged from the hospital. In the diagnosis of hysteria, the impression which the individual makes upon the observer counts for something, and this impression was, in the case before us, opposed to such a diagnosis. Moreover, the diagnosis tetany, in a mild form, explains very well the symptoms.

Tetany is a disease which is so rare with us—I can find no mention of it in Pepper's "System of Medicine"—that I may be pardoned for the following brief description of it: First described by Dr. Dance, who called it "intermittent tetanus," the term "tetany" was first applied to it by Corvisart, and later adopted by Trousseau, who also called attention to its comparative frequency in nursing women. It is classed as a neurosis, affects young adults by preference, and is characterized by intermittent, tonic contractions, rarely of the trunk and face, most frequently of the upper extremities, and chiefly of the flexor muscles, the intellect always remaining clear. It is bilateral. The attacks are generally preceded by somewhat ill-defined prodromata, and recur at variable intervals during periods of a few days to months. In the intervals between attacks, patients appear well. Trousseau first showed that attacks may be brought on at will by pressure on the nervous and arterial trunks, the spasm ceasing as soon as the pressure is relieved. Erb has shown that the muscles are stimulated with undue ease by means of electrical currents through the peripheral nerves. As long as these two phenomena are present, there is a liability to the recurrence of the attacks. Attempts to elicit the phenomena in my case failed, but the patient was already under the influence of chloral and bromide when the attempts were made—a fact which may or may not be of importance. The affection nearly always passes off without leaving any trace behind it. After carefully considering all the facts in my case, I repeat that I am inclined to consider it as one of tetany of a fairly mild form, and very short course—three days. At the same time, I am far from wishing to suppress the points opposed to this diagnosis, namely, the trismus of a year's duration, and the failure to bring out the signs of Trousseau and Erb, on which the books lay considerable stress.

DR. MINOT said that Dr. Shattuck's case corresponds closely with the description of the disease in a paper read by Dr. Lyman, of Chicago, at the annual meeting of the Association of American Physicians, in June last, and printed in the Transactions of the Association. Other cases were reported at the same time by Dr. Carpenter, of Pottsville, Penn. I should say that the disease is not extremely rare in children under four or five years of age. We see the thumbs bent toward the palm of the hand, the other fingers partially flexed, and the toes strongly flexed. There is usually some swelling of the hands and feet. These children are always feeble, insufficiently nourished, and often bottle fed, perhaps undergoing the process of dentition. In one case, that of a child, three months old, under my care, which was artificially fed, immediate improvement took place when a wet-nurse was procured for the patient, who is now fifteen years old, and in good health. I have never seen a case in an adult which I recognized at the time, but possibly that of a physician who consulted me, and also Dr. J. J. Putnam, might come under this category. The movements were very striking, and corresponded to those in one of Dr. Lyman's cases, which were communicated to him by another physician.

With regard to the subject of hæmophilia, I think it remarkable that the now well-known spontaneous hæmorrhage of new-born children (umbilical hæmorrhage), which is to all intents and purposes the same disease, although fatal in eighty-four per cent. of the cases, yet in the few cases which recover does not recur, the hæmorrhagic tendency being as it were, extinguished, as I have seen in several instances.

DR. PUTNAM: I will merely speak of the case mentioned by Dr. Minot. I have never seen any of these attacks, and cannot recall the case very accurately, but it certainly did not suggest itself to me at that time as a case of tetany. The only case that I have seen occurred in an under-fed child of not more than a year old. In adults I have never seen it. I have seen a large number of nervous diseases at the hospital, probably five hundred a year for a number of years, and I have never seen a single case of this kind.

DR. WEBBER: I remember two cases of tetany; I was asked to see a patient several years ago, the muscles of the legs and trunks were affected, the arms less so. When the attack came on the patient suffered very severely from a strong muscular contraction which could not be overcome by manual force. Ether had been used to some extent for relief. The drug which gave the most relief was fluid extract of conium, after some doses had been taken at intervals of two hours, the attacks ceased; the man got well. He had had the affection for a number of days before I saw him. The other was a case in which the arms were chiefly affected, the trunk was not affected. The spasms had continued for several weeks, several attacks each day, but nothing I could do gave him any relief. I tried conium, electricity, etc. The attacks were quite painful. The man came to see me several times but obtaining no relief, became discouraged and I saw no more of him. The attacks were very similar to those described by Dr. Shattuck.

DR. KNAPP: Tetany is so rare an affection that I may be justified in citing a case which resembles some of those spoken of to-night. The patient was a neurotic, poorly-nourished boy of fourteen, who had been at some charitable school, where his food and hygienic surroundings were not of the best, and where, according to his story, he was not very well treated. A week before he came to the City Hospital, he held his breath for some time in order to avoid a disagreeable smell, and after this he began to have cramps, numb spells, and "pins and needles" sensation in his hands and feet. The cramps affected the whole body, and the pain was so severe as to make him cry out. These came on quite frequently. During the cramps he found it difficult to speak or move. They lasted from half a minute to a minute. He had occasional sick headaches and was rather costive. He was not strong, and was rather deficient mentally, and, as I said, was poorly-nourished, and rather emaciated. While in the out-patient room he had an attack which I was able to observe. He seemed nervous and agitated as it came on. He said that the attack began in his feet and went up, the muscles of his abdomen being most affected. He stood up, his limbs were rigid, his arms were by his side with the fingers much extended and

somewhat abducted, his face was drawn with an expression of pain—whether from spasm or voluntarily from pain, I could not say,—he made no movement, except a slight general tremor, and he made no answer to my questions, because he could not move his lips and tongue he told me afterwards. He understood perfectly what was said during the spasm. Motion relieved the spasm. After recovery from the spasm I examined him, finding nothing abnormal in the chest. Pressure was made over the median nerve and brachial artery, and soon after a second spasm came on. Further pressure, after this, did not excite another spasm, so I am disposed to regard this as merely a coincidence. I then examined him with electricity. The muscles and nerves of the arms responded to a very mild faradic current. With the galvanic current KaSZ=AnSZ with $\frac{2}{1^0}$ to $\frac{3}{1^0}$ Ma. in the various muscles of the arm. The median nerve responded to $\frac{2}{1^0}$ Ma. The boy was sent into the hospital, but I am unable to give any further account of him except that a diagnosis of pavor Mocturnus was made, which was only a part of his trouble. I am still unwilling to call this case tetany. The spasm involved the muscles of the trunk, which is rare except in the severest forms of tetany; the fingers were extended and abducted,instead of being flexed and abducted as in the hand when it is about to be introduced into the vagina; there was no undue excitability of muscle or nerve to electricity, and the attacks were not provoked by pressure on the nerve or artery. Such a combination of symptoms, therefore, is not like the symptom-complex of tetany, as given in the books, yet the condition was certainly curious.

Dr. Weeks: I have met one family of bleeders, who did not seem to feel the law of transition laid down by the authorities. Some five or six years ago I was called to a little child about two years of age, who was teething, and had a slight abrasion of the gum from which a persistent hæmorrhage had been going on for some time. I applied styptics, and after a time the bleeding ceased and has never recurred. I learned that the elder boy, some ten or twelve years of age, was troubled in the same way when he was an infant, and had since outgrown the diathesis. The family were of German extraction on the mother's side, the father was an American I believe. The mother seemed quite an intelligent woman, and said that her father was a physician, and that the case of the elder boy troubled him somewhat; he said he knew of no cases of the kind in his family or his father's family. This same boy I was called to treat, some two years afterward. I went to Melrose where the family had moved, and got there perhaps an hour after being notified, as I was out when called, and when I got there he had died of epistaxis.

Dr. Baker asked whether a tendency to umbilical hæmophilia was ever transferred to the offspring? Whether their children showed it?

Dr. Weeks had never seen a case of direct transmission. The case he mentioned was that of a young lady now married; he went to attend a relative of this patient, either a sister of hers; the sister of the first one who died, was a victim of this disease. His impression was that she was married and left a son about eight or ten years old. He has never had any disposition to bleed. These cases are almost always hereditary. The remarkable point was that when the patient recovered, she recovered completely and permanently and never had another attack.

Dr. Blodgett had had an opportunity of learning the history of one case similar to that reported by Dr. Shattuck, of a certain family of which I have considerable knowledge. This patient, a male, was one of several children of the same father and same mother. He is the only one who showed a disposition to bleed. On several occasions he bled alarmingly from the nose, the surface was blanched, he became unconscious, and was evidently in the last extremity. He has not had other forms of hæmorrhage, and the nose-bleed was the only accident he dreaded and from which he expected to lose his life. He is now fifty or sixty years old. Certainly the greater part of his life has been passed in imminent peril from loss of blood, and he has been at death's door from this cause a number of times. I do not know that I am warranted in calling this a case of hæmophilia, though the hæmorrhage was very severe in its character.

Dr. Henry Jackson read a paper on

Myositis universalis acuta infectiosa, with a case.

I saw last spring in Strassburg the following rare case. The above diagnosis, made by elimination during life, by Professor Kussmaul, was sustained by the result of the autopsy performed by Professor von Recklinghausen. The case entered the hospital May 18, and was demonstrated in the clinic May 22:

Woman, aged 36; family history good; she has two healthy children; lives in a district apparently healthy; no one else sick in the house. Was never sick before so far as she knows. Six weeks ago first felt sick (unwohl). Malaise, inability to work; had a red, papular eruption on the face, pain in the neck, pain in swallowing. She was treated for a sore throat. The eruption disappeared in a week's time and treatment. After the disappearance of the eruption, first noticed swelling, accompanied by pain in the shoulders, legs and sacral region; the swelling in legs soon passed off, appearing in the arms. Last two weeks pain in the neck, swelling less marked. The pain, which was first sharp, has become dull (dumpf). Pain has always been in the muscles and not in the joints. Throughout the sickness appetite fair, thirst marked, sweating, moderate fever, constipation, no vomiting, urine scanty and high-colored.

On entrance, May 10, slight fever, mind clear, slight œdema of face and extremities, muscles of extremities flexed and rigid; extension caused pain. Paresis of soft palate, electrical reaction in general diminished, reflexes absent (aufgehoben). Examination of chest and abdomen negative. During last few days high fever, rapid respiration, pulse 140. Several small patches of pneumonia (Schluck pneumonie).

Professor Kussmaul considered the diminished electrical reaction as due, in part, at least, to the

œdema, the abolition of the reflexes as of peripheral, not central origin; he considered the pneumonia as very probably due to particles of food which get into the lung on account of the difficulty in swallowing. Mind clear to the last; no symptoms pointing to disease of the abdominal organs. Death on May 24; ultimate cause, broncho-pneumonia.

Trichinosis was first thought of; eliminated by the history (her husband did not allow her to eat raw sausages), by the absence of the gastro-intestinal symptoms as prodromata in this disease, by the fever in present case. Professor Kussmaul said the case reminded him clinically of one in which thousands of miliary aneurisms were found all over the body. The fever, the widespread muscular pain and œdema pointed to a diffused myositis without any discoverable local cause, hence the diagnosis was as stated.

Autopsy, May 25. Brain and spinal cord presented nothing abnormal. Veins of abdominal cavity very full of blood. Spleen soft, enlarged. Stomach and intestines presented nothing abnormal. Stricture at the entrance of the pelvis of right kidney into the ureter, which had caused hydronephrosis of right kidney with almost total disappearance of the substance of the right kidney. Left kidney much enlarged, otherwise not abnormal. Heart pale. In both lungs several small patches of pneumonia. The muscles throughout the body, especially in the extremities, the trunk and the face (orbicularis), pale in color and moist; many small hæmorrhages in sheaths of the muscles; rupture of left rectus abdominis, with hæmorrhage.

Under the microscope the muscles showed waxy and granular edges; fibres broken; small-cell infiltration in the interstitial tissue, in no place amounting to the formation of abscesses visible to the naked eye. Nuclei of the muscles increased markedly, showing a real proliferation of muscular tissue, as well as a degeneration. I heard no report of a bacteriological examination, but reasoning by analogy with diseases which have been studied, we may say that bacteria were most probably associated with the inflammation.

Professor von Recklinghausen told me that when he was an assistant to Virchow he had seen two similar cases, but I have been unable to find a report of them. We have here some acute disease of a febrile nature, rapidly ending in death. At the autopsy a widespread myositis is found, otherwise no pathological lesions which can be considered as a primary cause of the severe symptoms existing during life.

Dr. Blodgett kindly called my attention to a similar case published lately in the *British Medical Transactions* (December 18, 1886, p. 1215): Acute myositis (Mr. Treves). After exposure to severe cold, the following symptoms were manifested; chill, malaise, fever, loss of power in arms, cramp like pain. Similar pains in legs. Gradual recovery in six weeks. Mr. Treves divides myositis into; (1) Simple, due to injury. (2) Myositis from cold. (3) Infectious boil or osteo-myelitis. (4) Attending various infectious diseases. (5) Trichinosis. This is the only case I find in the recent medical journals, German or English. In the fourth volume of "Virchow's Archives," (1852), is an article by Virchow on myositis. Anatomically, he divides myositis into: (*a*) Interstitial. (*b*) Parenchymatous. (*c*) A combination of (*a*) and (*b*). Etiologically divided into: (*a*) Traumatic. (*b*) So-called muscular rheumatism. (*c*) Syphilitic. (*d*) Septic. Then goes on to say: (*e*) "One sees finally abscesses occur in muscles under conditions as yet not made out, under conditions spoken of by the Vienna school as 'spontaneous pyæmia.' General symptoms are chill, high fever, disturbance of heart, severe widespread pains; death in a few days. Such processes may be of spontaneous origin, more commonly due to other septic diseases, especially typhoid."

A similar allusion I find in Förster. In Lobstein a case of death where the only lesion was a myositis (general?) and local patches of pneumonia. In none of the more recent works on pathology do I find any mention of a myositis, widespread in area and independent of some preëxisting centre of infection.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, Thursday, April 7, 1887.

THE PRESIDENT, THOMAS M. DRYSDALE, M.D., IN THE CHAIR.

(*Continued from page 640.*)

THE ANTISEPTIC PAD.

DR. HIRST exhibited the antiseptic pad used by Richardson, of Boston, and Garrigues, of New York, to prevent the entrance of pathogenic germs to the vagina after labor.

DR. PARVIN was not impressed with the necessity for the antiseptic pad, believing that as good results could be had from antiseptic napkins. The oiled silk or muslin used in making it, it seemed to him, might hinder the ready escape of the lochia. After labor the vagina is practically a closed canal, open only for the egress of uterine discharge, and disease germs cannot enter unless that canal be opened by some manipulation of the nurse or the physician, as in giving a vaginal injection, or in making an examination. It seems to me needless to completely close the vulva, and it also seems possible that such closure hinders the escape of the lochia. But be this as it may; if the vulva is carefully washed twice a day with an antiseptic solution, and if napkins, that have been wrung out of a 1 to 2000 corrosive sublimate solution, are applied over it, changing them more or less frequently according to the amount of the flow, he thinks as good results can be had as by using the antiseptic pad. Moreover, it seemed to him doubtful whether antiseptic pads, though they have proved very useful in maternities, will be readily accepted in private practice, especially in the country. In regard to the results in hospital practice from the use of antiseptics, he has no doubt of their value, and should insist upon their employment. So, too, in private practice he has used them, and

has for some years, but it is only comparatively recently that he has learned how they should be used.

Dr. Parvin objects to the glass tubes for intra-uterine injections. Take for example Chamberlain's, and especially that of the late Albert H. Smith, and they will be found too large for use in some cases where injections are required. Then, too, the liability of glass to break is to him a conclusive argument against the introduction of an instrument made of this material into the uterus or into the vagina. The best instrument, he believes, is Bozeman's catheter. Formerly it was his custom to wait, in cases of septic infection, until the flow was offensive, and then at first to endeavor to correct the condition by vaginal, before resorting to uterine injections. He now knows that is wrong, for the patient may perish or have a protracted illness aud then make but partial recovery without the lochia at any time having an offensive odor. Within a year he has seen in hospital practice and in consultation eight cases of septic infection where the happiest results were promptly had from antiseptic solutions injected into the uterus. Most, if not all, of these patients would probably have recovered without these injections, but their recovery, judging from similar cases, previously observed by him, would have been slow, possibly imperfect, and after a more or less prolonged period of suffering upon their part, and of anxiety on the part of the practitioner. We have in antiseptic uterine injections the essential, and the al most invariably successful, treatment of puerperal septicæmia, if this treatment be begun soon enough and properly carried out.

Dr. Barton inquired if the antiseptic pad was applied dry or moist.

Dr. T. M. Drysdale, while conceding the importance of antiseptic precautions in hospital, thought the advantage of these methods in private practice more difficult to prove. Until he relinquished obstetric practice, in 1874, he had met with but five cases of puerperal fever in over two thousand deliveries, and in none of these women were any antiseptic precautions used, other than cleanliness, as they were not then known.

Dr. Longaker believes, with Dr. Hirst, in the great utility of intra uterine post partum medication. Dr. Hirst has neglected to notice an agent in which he, Dr. Longaker, has the greatest confidence: iodoform, as used by Ehrendorfer, of Vienna, in the form of 100-grain pencils. One of these is introduced into the cavity of the womb after irrigation; it dissolves very slowly and continues to medicate the entire utero-vaginal canal for forty-eight or seventy two hours. In removing shreds of membrane, after labor at term or after an incomplete abortion, he uses the finger and prefers it to any form of curette he has used. Theoretically he would prefer a glass tube for intra uterine irrigation, chiefly for the reason that it is more easily cleansed and kept clean. Hitherto he has always used the Bozeman canula, the only objection to which is the difficulty of cleansing, and hence a possible danger of carrying sepsis from one case to another.

Dr. Baer emphatically endorses what has been said in favor of Bozeman's tube for intra-utering irrigation, and against the glass tube. The return current is sure, and the small size of the instrument, as compared with the glass tube, renders the introduction easy and safe.

Regarding the pad exhibited by Dr. Hirst, if he believed the theory that the atmosphere is constantly impregnated with germs which poison whenever they come in contact with open vessels, I would certainly advocate the use of an impervious covering for the vaginal orifice. For the theory teaches that where there is no contact with the air there can be no sepsis. But he does not believe this fully. Therefore he thinks it safer to place the napkin under, and not over, the vulva, so as to permit as perfect drainage as possible, thereby giving free exit to the lochia by making of the vagina a drainage tube, its natural function after parturition.

Dr. Hirst remarked that the pads were used dry by Dr. Richardson, and moist by Garrigues.

LABOR COMPLICATED BY LARGE HARD HEADS.

Dr. M. Price was called to this patient three weeks before her delivery. She informed him that she was in labor and that her time had expired. Examination showed the cervix but little dilated, the os not being larger than a silver quarter. There was quite a discharge from the vagina. The pains were at short intervals and were unquestionably labor pains. The woman was in good condition and he had no doubt that labor would go on. He left, giving instructions to send for him if the pains increased, and if not sent for he would call next day. He had attended this woman in two previous pregnancies, both children being large and the labors tedious, so he anticipated that this one would be a slow labor. The next day the pains were less than on the previous day, and there was no change in the cervix. He did not hear again from her for three weeks, when the husband called and stated that his wife had been in labor all night and all day. He now found the cervix wide open, but the presenting part so high up that he was not able to say what part was presenting. Passing the entire hand into the vagina, he found a vertex and, but the head would not engage. After waiting two hours he found the head had been pushed to the side of the pelvic inlet, with the occiput resting on one side and the neck and shoulders on the other, and determined to ascertain the difficulty. He pushed his hand up into the womb, and had no difficulty in bringing the head back to its first position, but found that it was completely ossified. There was no pulsation in the cord that he could detect, and he at once decided to deliver by turning, as he thought he could deliver the child in that way sooner than in any other. He at once secured the feet and soon had the body and arms delivered. The forceps were applied to the after-coming head, and it was delivered after quite a pull at the superior strait, but with ease through the soft parts without the instruments. There was no injury to the mother and she made a rapid recovery. The child was still-born. Its head measured sixteen inches in occipito frontal circumference.

There can be no doubt that the mother's pelvis is much above the average size, as a head perfectly ossified could not have passed through a pelvis of less than sixteen and one-half inches, as the soft parts would take up at least one-half inch. Standard authorities give the circumference of the female pelvis at the inlet at from thirteen to thirteen and one-half inches.

DR. JOSEPH PRICE read a paper on

ABDOMINAL SECTIONS.

In reporting a mixed group of cases treated by those methods of which Mr. Tait has been the first and chief advocate, I desire to make brief reference to Dr. T. Gaillard Thomas's article on "Laparatomy as a Diagnostic Resource," published in the *Medical News*, Dec. 11, 1886. Therein Dr. Thomas expresses in full Mr. Tait's views. They are simply without the mention of Mr. Tait's name, an embodiment of the views given vent to by Mr. Tait while on a visit to America in the autumn of 1884. Dr. Thomas would select the text of Mr. Tait's law, his own axiom, as a motto for the walls of a hospital devoted to abdominal surgery. "When a doubt, as to the diagnosis of an abdominal neoplasm of a serious character, or of certain obscure pathological conditions of the abdominal cavity which threaten life, exists, give the patient the benefit of explorative incision." Mr. Tait, in like clean and terse English, expressed the same view in a clinical lecture at the Hospital of the Jefferson Medical College, Sept. 15, 1884, when he said "My experience teaches me that it is a surgical crime to allow a patient to go to her grave without operation where it offers a possibility of relief." Dr. Thomas, with great frankness, reports five cases as examples of the class in which he had to regret non-interference on his part: cases in which "we" or "I" decided againt operation—the patients died. Further he says: "I regret to say that I could more than double the cases illustrating this part of my paper. Few such cases occur to me now for the very reason that I am a strong advocate for explorative incision as a diagnostic resource." As to another class of cases in which Dr. Thomas meets with happy results, he reports as follows: "There is a class of cases in which, in my hands, explorative incision has yielded such brilliant results that I shall devote full consideration to it; I allude to cases of ascites in the female." Mr. Tait, in the address I have referred to, gave as as example in point a case operated upon four years previous. "The patient, a young lady, had an enormously enlarged abdomen due to ascites, a fact I had recognized. I opened it by incision for exploration and drainage: by this means the fluid is evacuated just as well as with the trocar, but you cannot feel anything with a trocar; but with a clean cut of two or three inches you can introduce one or two fingers and find out the actual condition of the pelvic organs as you can in no other way." The pioneer work done by Mr. Tait, his influence in exploratory work and treatment of diseased conditions of the tubes, is referred to by Mr. Greig Smith in a very fair and generous spirit. "Tait's name is mainly connected with inflammatory diseases of the tubes, and his influence has been strongly felt in the substitution of operation for actual disease as against vague nerve symptoms." I am strongly of the opinion that an incision which admits only two fingers and not the whole hand is a sufficient incision. Dependence upon fingers skilled in manipulation will serve best, and effectively guard against danger in any pelvic operations. Herein I differ from Dr. Thomas, who urges: "Make an incision which will admit the whole hand; one which will admit two fingers only is hardly warrantable." There is great danger in multitude of fingers of irritating the bowels with the hand and further running great risk by exposure.

Many fatal results attend men beginning the study and practice of surgery of the abdomen. This is illustrated by the statement of an abdominal surgeon: "I do not count my first thirteen cases, because I was learning how to do it." In this there was considerable Rip Van Winkle arithmetic: "We won't count this one." The present good results in the hands of young surgeons must not be attributed to the taking advantage of all the so called "latest antiseptic improvements." In this relation I will make brief allusion to an experience with well trained young surgeons, six in number, doing nine pelvic operations due to inflammatory trouble, suppurating, adherent, and matted together pelvic viscera. The operations were all completed, with but one death, notwithstanding they were all bad cases.

In illustration I present a specimen of *Pyosalpinx* removed by Dr. Thomas G. Morton. This patient had an enormously enlarged abdomen. She had been seen by a prominent gynecologist who had plainly stated that there was no ovarian trouble and recommended tapping, which was done. It is my impression that by the first tapping the large cyst was ruptured, the dropsical accumulation followed. Dr. Morton found upon examination, after repeating the tapping, (the patient refusing any other operation) a small tumor or collapsed cyst. He refused to repeat the tapping and urged section. He kindly asked me to see the patient. Upon examination I was fully satisfied of the correctness of Dr. Morton's diagnosis and agreed with him in urging section. It was immediately done. Extensive adhesions had developed from the tappings, free hæmorrhage followed. He removed a large collapsed cyst, and by irrigation large quantities of old clot. An interesting feature of the case was the existence of two pedicles, the pelvic, and a fan-shaped one over the diaphragm and stomach. The case presented very interesting and instructive features.—Result: cure.

PYOSALPINX.

Ella DeLacy, white, æt. 18 years, on October 31, 1883, presented herself at the Philadelphia Dispensary complaining of attacks of free bleeding and of pain in the left groin and left sub-mammary region, intensified by locomotion. On examination the uterus was found low down and retroverted, the left ovary was tender. On June 16, 1885, vulvo-vaginal gland enlarged and tender: abscess incised and packed. On July 1, 1885, she complained of pain in

the back, left shoulder and left inguinal region. She was put on general treatment. Menstruation was normal Nov. 9, 1885. Examination showed the uterus retroverted and the ovaries tender, vulvo-vaginal glands enlarged; abscess incised and packed. Nov. 25, 1885. The uterus had been treated for its displacement and at this time was found in good position. Both ovaries were enlarged and tender. Feb. 24, 1886. Complained of pain on coition. January 25, 1887. Pain in right inguinal region. On examination there were found tortuous, cystic, boggy masses, filling up the whole right side of the pelvis. January 26, 1887. Dr. Price opened the abdomen in the median line, the incision being enlarged to three and a half inches on account of deep adhesions to all of the pelvic viscera. The right tube charged with pus and the right ovary with a parovarian cyst as large as a cricket-ball, were removed, the pedicle ligated with silk and dropped. Free irrigation was employed; the wound was closed with silk.

PYOSALPINX.

Reported for T. S. K. MORTON, M.D.

Mrs. S., white, æt. 36, complains of pain in right illiac region and extending down the right thigh increased by locomotion. General condition bad. Dissipated. *Examination.* Uterus in good position; to the right of cervix is a firm pedunculated tumor filling up the pelvic cavity on that side, firm, nodular and adherent. *Operation*, Jan. 25, 1887. A two inch incision was made two inches above the pubis, two fingers were introduced and everything found practically normal except the right ovary and fallopian tube. The ovary was as large as a pigeon's egg and firmly bound down in every direction and apparently more cystic than normal. The tube was likewise bound down, extremely thickened and contained fluid. After carefully examining all around the adherent mass, a point more friable than the other adhesions was found and torn up. This done the enucleation became a matter of patience and application of judicious force until the whole mass had been shelled from its inflammatory bed. When thus freed, the ovary and tube were brought out of the wound and the pedicle doubly ligated as near the uterine cornu as possible and divided with scissors. Previous to dropping back the pedicle the remainder of the fallopian canal in it was thoroughly swabbed out with strong bichloride solution, 18 grs. to ℥j. Scarcely any oozing took place and after thoroughly irrigating with water that had been boiled, and carefully sponging the peritoneal cavity was found to be perfectly dry. The incision was closed without a drain. Time, 55 minutes. *Progress.* Occasional slight nausea was the only untoward symptom following the operation; evening temperature, 99 4°; next morning, 100°. After that it did not rise until the evening of the fourth day, when it mounted to 102° and she complained of considerable abdominal pain with much vomiting. This set-back had come on as a result of getting up and walking about the room some hours before during the absence of her nurse. The fifth day found her with marked symptoms of peritonitis, vomiting, and towards evening shock and evidently dying. Death occurred during the night.

Autopsy.—Parietal wound in good condition; about half-a-pint of cloudy serous fluid in the peritoneal cavity: abdominal contents matted everywhere with very recent lymph; no blood or clots; kidneys somewhat granular, but not nearly so much so as might have been expected from her dissipated manner of living; other organs practically normal,

OVARIAN CYST SIMULATING ECTOPIC GESTATION.

Reported for DR. F. A. PACKARD.

Kate Taggaronni, white, æt. 29, married the second time about two years ago. Had five children, all by the first husband; no miscarriages, labors all easy and natural, made good recoveries and nursed all her children. Menstruation regular in time and quantity until November, 1886, when they were absent in November and December.

For the past month she had been bleeding freely, the hæmorrhages appearing in clots mixed with what seemed to be shreds of decidua. The breasts tingle but are not apparently enlarged; face blotchy; no abdominal enlargement noticed. She has had nothing like labor pains. The discharge is of bad odor. She has had no fever or chills. *Examination* showed a cystic tumor, in the pelvis to right of the uterus, about the size of gravid uterus of second month. *Operation.* On January 10, the patient being etherized, an incision three inches in length was made in the median line of the abdomen just above the pubis. Hæmorrhage from the abdominal wound was slight. A small cyst of the right ovary was found consisting of two chambers, one being filled with clear serous, the other with darker blood-stained fluid. There was no adhesions. The cyst was removed unruptured; the pedicle ligated with silk and returned. The cyst was about the size of a small orange and sprang from the right ovary. The patient's condition after the operation was excellent. She had no rise of temperature or pulse, and no pain. Four stitches were removed on the fifth day and the remainder on the seventh day. There has been no return of the bleeding.

ABDOMINAL SECTION FOR INTESTINAL PERFORATION.

Reported for DR. FRANCIS L. HAYNES.

Mrs. M., æt. 20, nullipara, had suffered for nearly a year from diarrhœa, cough with purulent expectoration, and symptoms produced by uterine disease and general weakness. March 9, 1887, she was suddenly seized with severe abdominal pain, which shortly became intense in a spot two inches to the right of the median line and three inches above Poupart's ligament. The temperature varied from 100° to 104°; pulse from 120 to 140. Vomiting and purging and slight balooning were other symptoms. The attending physicians, R. and F. L. Haynes, diagnosticated perionitis from intestinal perforation. As the patient gradually became worse, Dr. Jas. Price made abdominal section on March 14. The intestines were found matted together. They were washed and wiped with sponges. Two pieces of fecal matter, each about the size of a pea, together with some serum were removed from the cavity. The abdom-

inal pain and swelling now diminished and by the third day after the section had entirely disappeared. The temperature gradually sank to normal. On the seventh day the patient became delirous, collapsed and died on the morning of the eighth day after the section. No autopsy was allowed. It was thought that general tuberculosis was the cause of death.

(To be concluded.)

FOREIGN CORRESPONDENCE

SURGEONS AND SURGERY IN LONDON.[1]

St. Thomas's Hospital—Strangulated Hernia—Mr. Malcolm Morris—Mr. Pearce Gould—Mr. Timothy Holmes—Suppurative Inflammation of Shoulder Joint—Destructive Inflammation of Foot in Diabetes; amputation—Sir William MacCormac—Guy's Hospital; Its Museum—Congenital Hydrocele of the Cord—Mr. Thomas Bryant—Epithelioma of the Hands.

Dear Dr. Fenger:—A visit to St. Thomas's Hospital afforded me an opportunity to witness an operation for strangulated inguinal hernia by Mr. Sidney Jones, Senior Surgeon of the Hospital and Professor of Surgery in the school in affiliation with this institution. Full antiseptic precautions were observed, including the now almost obsolete spray. The patient, a man about 40 years of age, claimed that he was never aware that he had a hernia until the evening before, when a swelling formed rapidly in the right groin, followed by symptoms indicative of a strangulated hernia. When admitted into the hospital the lesion was readily recognized as a strangulated hernia and several gentle attempts were made to reduce it by taxis, but without success. The tumor was nearly as large as a fist and very tense. A long incision was made down to the sac and all hæmorrhage carefully arrested before the peritoneal covering was laid open. On opening the sac a large mass of omentum came into view, underneath which a loop of intestine intensely congested was found. The omentum was divided into four parts just below external ring, tied with catgut, and the portion below the ligatures cut off and the stump returned. The internal ring was divided in the usual manner, the loop of intestine drawn forward, examined and returned. At this stage of the operation it was evident that internal hæmorrhage was taking place as arterial blood escaped from the empty canal. A search for the omentum through the opening proved fruitless and it became necessary to lay open the entire inguinal canal, but even this extensive enlargement of the wound did not afford access to the retracted omentum, and the abdominal wall was incised for at least three inches more, when the omental stump was found and brought into the wound. One of the ligatures had slipped and caused free arterial hæmorrhage. The hæmorrhage was arrested by the application of another catgut ligature and the stump again reduced. The neck of the sac was tied and stitched into the wound. The extensive wound was closed with deep sutures including the peritoneum, drained and a dressing of iodoform gauze and cotton applied. This hospital is one of the best in London, contains 600 beds, which furnish the material for clinical instruction for the students attending the school connected with this institution.

A visit to the residence of Mr. Morris afforded me an opportunity to examine an excellent collection of renal calculi removed by nephro-lithotomy. Mr. Morris is a young surgeon of great promise, who has had an unusually large number of cases of renal surgery. He is one of the surgeons to the Middlesex hospital and enjoys a good reputation at home and abroad.

A call upon Mr. Pearce Gould, who lives in the same part of the city, was remunerated by a profitable conversation touching upon recent topics in surgery. Mr. Gould is a thorough scholar and an able surgeon, and has done excellent work in the Middlesex hospital.

At St. George's hospital, I made the acquaintance of Mr. Timothy Holmes, the author of a voluminous, and I might say the best, English text-book on surgery. Although advanced in years he still retains his youthful energies and continues his work of giving regular clinical instruction. A female, 20 years of age, suffering from a suppurative inflammation of the shoulder joint, furnished the subject of his clinical lecture on this occasion. A contracted, fistulous tract commencing at the lower margin of the pectoralis major communicated with the shoulder joint. The joint was laid open by a straight anterior incision, and after severing numerous adhesions the upper extremity of the humerus was brought into the wound and the bone divided with an amputation saw just below the tuberosities. Parts of the capsule were removed with curved scissors and a drain introduced through the fistulous tract which had been previously scraped out and dilated. The dressing consisted of a thick compress of antiseptic guaze. He said nothing about the pathology of the case but made the assertion that in such instances it is superfluous to make the operation subperitoneal as such a procedure would be of doubtful advantage, but in case it became necessary to divide the bone at a lower level the periosteum should be preserved. The best functional results he has seen after excision of the shoulder-joint were patients who could raise the arm to a horizontal position.

When Mr. Holmes finished his remarks Mr. Hayward took his place and presented a diabetic patient who had recently become the subject of a destructive inflammation of one of his feet, which had terminated in extensive sloughing which had opened the ankle joint. Amputation was performed at the junction of the middle with the upper third of the leg, by making a long anterior and short posterior flap. The periosteal flap was made, and the flaps were sutured in the ordinary manner and a transverse drain introduced. A gauze dressing was applied. In this connection I will give you the result of a conversation with Professor Koenig a few days ago, concerning the propriety of resorting to amputation in diabetic patients suffering from gangrenous inflammation of an extremity. He stated that while

[1] By permission of Drs. Fenger and Senn.

it had been customary heretofore to resort to preparatory treatment prior to amputation, with a view of diminishing the sugar in the urine, he had during the last year operated upon several cases where the patients had high temperature and the urine contained large quantities of sugar, with the result that almost immediately after the operation the temperature became normal and the specific gravity of the urine less. The result of these observations has convinced him of the fact that it is dangerous to delay the operation whenever the local symptoms indicate the necessity for such a procedure in diabetic patients. In corroboration of this statement it may be said that quite recently a French chemist has shown that the introduction of septic material into the blood produces an artificial diabetes which disappears as soon as the septic condition subsides.

A third operation was performed by Mr. Dent. The case had been diagnosticated as lipoma, but during the dissection the cyst ruptured and the escape of other omatous material showed the fallacy of the diagnosis and proved that the swelling was not a tumor but a retention cyst. I have every reason to believe that in many of these large metropolitan hospitals the diagnostic resources are not always exhausted prior to the operations, and that often the true nature of the case is only revealed during the course of the operation. Many of the most prominent surgeons are not exempt from this fault. The greatness of a surgeon should never be measured by the brilliancy of his operations but by the knowledge and care he exercises in rendering a correct diagnosis upon an anatomico-pathological basis.

The pleasure of my visit in London reached its maximum at a dinner with Sir William MacCormac, at the Reform Club. On this occasion I met the house surgeons of St. Thomas's hospital, and Mr. Trimmer, Secretary of the College of Surgeons. I shall always cherish the recollections of that evening as a bright and verdant oasis of a laborious professional life. The last day of the week I spent in London I devoted to a visit to Guy's hospital. One of the great attractions of this institution is the anatomical and pathological specimens, modeled in wax by the skillful hands of Mr. Thomas Town, who spent nearly half a century of his useful life in their preparation. Hundreds of specimens, as natural as life itself, can be found here illustrating normal anatomy and pathological specimens. I know of no better anatomical school than the museum of Guy's Hospital, where, upon long tables under glass covers, the most beautiful models, taken from actual dissection, illustrate every organ and every region. The students appear to take advantage of this opportunity to master their anatomy, as quite a number were seated in front of the specimens with Gray's Anatomy in their hands. The models illustrating pathological specimens show the tissue changes much better than the original specimens. In the afternoon Mr. Davies-Colley operated upon a case of congenital hydrocele of the cord in a boy 8 years of age. The testicle could be distinctly isolated from the swelling, and there was reason to believe that the communication with the peritoneal cavity was a small opening. During the delicate dissection made with a view of extirpating the sac, it was found very difficult to isolate the cord, and the tunica vaginalis was opened at a small point corresponding to the upper surface of the testicle. The neck of the sac was ligated, and subsequent examination of the specimen proved the correctness of the diagnosis. The operation was performed under a spray and a Lister dressing was applied.

On a previous occasion I had made the acquaintance of Mr. Thomas Bryant, the author of the familiar text-book on surgery, and at this time I had an opportunity to hear him lecture and see him use the knife. From a practical point of view his clinic was unimportant, but exceedingly interesting from a pathological standpoint. The patient was an old gentlemen who had been suffering from a papilloma upon the dorsum of one of his hands for twenty years. For the last two years the tumor increased quite rapidly in size and the surface ulcerated, features which led Mr. Bryant to the belief that the benign papilloma had undergone transformation into a sarcoma. To me it appeared that the transformation had taken place in the epithelial covering, and that the tumor was not a sarcoma, but a squamous epithelioma; an opinion in which I was confirmed in my own mind by a macroscopical examination of a section of the tumor, where the cylindrical cords from the surface of the tumor towards its centre could be distinctly recognized. Mr. Bryant's favorite antiseptic solution is a weak watery solution of iodine, which he prefers to any other antiseptic, and with which he has had most excellent results. In my next letter I hope to give an account of my observations gathered from the two most noted European laparotomists, Tait and Péan.

N. SENN.

DOMESTIC CORRESPONDENCE

GALVANIC MEASUREMENT.

Dear Sir:—In a few of your recent numbers, not only have I been the subject of criticism for my advocacy of strong currents of electricity in the treatment of fibroid tumors of the uterus, but the technical correctness of some of my statements has been questioned. In regard to the first I think I will be able to justify myself, while the latter simply requires an explanation.

In order for one uninitiated to understand how it is possible to employ, without disastrous results, a current of electricity of as great intensity as that recommended by Dr. Apostoli, or as recommended in my article in THE JOURNAL of April 4, it is necessary that he be made familiar with the following points: 1. The toleration of the particular tissues traversed by the current; 2, the end sought by the operation; 3, the principles of the electrodes; 4, kind of current and method of appliance; 5, the electro-motor force of the current.

The maximum strength of current recommended in ordinary cases (from 200 milliampères upwards),

is only employed in the needle operation and for the purpose of checking alarming hæmorrhage from the cavity of the uterus. As the latter constitutes one of the most alarming, and very often the only grave symptom of this distressing malady, we are frequently consulted for that difficulty alone. The end sought in the treatment of such a case is to seal up the blood-vessels that are discharging their contents into the uterine cavity. This effect is accomplished not only as may sometimes be temporarily done by an actual or galvano cautery, or strong acid, or caustic alkali, or the curette, but also because it produces a similar though less destructive effect upon the deeper tissues as the current passes through them. The internal electrode that is employed in a case in which this result is sought is of platinum, and has an active surface in contact with the tissues to be affected of from 4 to 8 square centimetres. From this small surface the current radiates, as from the centre of a sphere, to a large portion of its circumference, which is represented by a large, concave, abdominal electrode, which is arranged to conduct equally from its entire surface. This external electrode may have a conducting surface varying from 400 to 800 square cm. The portion of the patient, then, that the electricity traverses might be represented by an inverted cone, the apex of which is at the internal electrode, with a surface of from 4 to 8 sq. cm., the base corresponding to the external electrode, with a surface of 400 to 800 sq. cm. If we should remove this cone of tissue and analyze it in many cases of fibroid tumors of a hæmorrhagic nature operated upon, we would find about one fourth of the cone from its apex toward its base composed of hard, unsensitive muscular tissue of the uterus, two thirds of the remainder of unimpressionable myoma, while the base would be composed of the most sensitive tissues of the mass—the abdominal wall and its integument.

The enormous current of electricity that this cone of tissue will tolerate, without injury to innocent parts, is what I have been criticised for advocating. The effect which is necessary for us to accomplish in this cone of tissue in order to effectually check hæmorrhage from its apex, or the internal surface of the uterus, is as follows: At the apex, where the powerful current is concentrated on a surface of from 4 to 8 sq. cm., we seek mild cauterization; as the current reaches the tissues immediately beneath the surface, and is not quite so concentrated, we want strong coagulation without positive destruction; as the current still further radiates we get milder coagulation, then strong electrolytic action, then milder electrolytic action; and when the more sensitive tissues of the surface are reached, the current is so thoroughly diffused that nothing more than a smart burning sensation is produced, and a temporary reddening of the skin. The strength of current in milliampères that will accomplish this effect is directly proportionate to the conducting surface of the internal electrode. For instance, if the conducting surface of the internal electrode is 1 sq. cm., and a definite effect is obtained, with a 100-milliampère current it will require just double that strength of current to produce the same effect if that surface is increased to 2 sq. cm.

While the density of the current is dependent upon the size and character of the electrodes, the pain produced in conducting a current through a tissue is also dependent, to a great extent, upon their character and position. With a small active electrode, internally applied, where the tissues are not sensitive, and a dense and high-tensioned current is not only tolerated, but necessary, the external abdominal or surface electrode must be of such a character that it will accomplish the greatest possible diffusibility, and possess the maximum conductivity consistent with little pain. The electrodes by which I make this possible were described in an article in THE JOURNAL of April 23, 1887.

It is not a difficult matter to understand that a painful and disastrous result would ensue if, instead of the large surface electrode externally applied, a small, highly conducting electrode should be substituted. In such a case, of course, the same effect would be produced upon the sensitive external tissue that we expect internally (cauterization and coagulation), because of the condensation of a strong current, that was just tolerated when diffused over a surface of from 400 to 800 sq. cm., to a surface of very much smaller dimensions.

Again, while it is necessary to have proper electrodes to prevent destructive and painful effects, it is also necessary to have a steady and uninterrupted current. If it is even and continuous, a much stronger current will be tolerated than when it is uneven and interrupted. The mechanical effect of an interrupted current of 25 milliampères strength through the abdominal walls could not be tolerated for a moment without the most excruciating pain, while a smooth and uninterrupted current of 300-milliampère strength, properly applied through the same tissues, is often received without a complaint.

For the same reason, the greatest precaution must be exercised in turning on the current, to see that it is done gradually. A much stronger current will be tolerated without discomfort if it is increased in strength a cell at a time than if the full force of the battery is switched on at once.

In estimating, then, the effect of a strong current of electricity upon a body, it is of the greatest importance to take into consideration: 1, the toleration of the particular tissues traversed by the current; 2, the end sought by the operation; 3, the density of the current and the principles of the electrode; 4, kind of current and method of appliance; 5, the electro-motive force of the current. The bearing the electro-motive force has in the case will be referred to shortly.

If the above points are thoroughly borne in mind, it seems to me even the most uninitiated can appreciate how utterly void of value the example cited by Dr. Engelmann in his last letter, in support of his opinion in regard to the point at issue between us, is. "Ten ampères," he says, "is the current used in the large electric lamps upon our streets. . . . . If an unfortunate fireman comes in contact with such a current for a moment he is struck dead! The fatal shock is caused by about one-tenth of an ampère, 100 milliampères, through the high resistance of the

human body." If this is a conclusive argument, or any argument at all, why 10 ampères cannot be used in the method I have described, why is it not as conclusive an argument against the use of 280 milliampères, which Dr. Engelmann maintained in his letter of April 11 that he himself had used? The argument is still further confused by the following statement: "The current used for the Brush Electric Light is about 10 amperès; if this is sent through the human body (the part of the body is not mentioned) which, with the dry skin, represents a resistance of 30,000 ohms, roughly estimated, one-tenth of an ampère (100 milliampères), strange as it may seem, would be the actual current passing through and causing the fatal stroke!" If we analyze the above statement we will not only see that it is without value as an argument against strong currents properly used, because it is in no way a parallel case; but we will also find that the conclusions are not necessarily correct.

It is not a parallel case because, first, the part of the body through which the current passes, in the case of the "unfortunate fireman," cannot possibly have the toleration that is possessed by the cone of tissue I have described. Presumably, in the case of the fireman, the current traverses the body from hand to hand. Here, instead of a solid section of tissue, two thirds of which is made up of pathological tissue and involuntary muscular fibres, the combined resistance of which may be as low as 50 ohms, we have the sensitive voluntary muscles of the arms and shoulders, with their sensory nerves, the lower cervical and upper dorsal spinal cord, the accompanying vaso motor ganglia of the region, the vagus and other important nerves, and the enormous resistance of 30,000 ohms.

2. In the operation I have described, by the use of the peculiar electrodes I have adopted, it is possible to use a much more powerful current, because it is widely diffused where it comes in contact with the more sensitive tissues, while, in the case of "the unfortunate fireman," the current enters the body in the most concentrated form, from the small section of a highly conducting metal wire.

3. I have endeavored to point out how necessary it is for us to have a steady and uninterrupted current, the necessity of increasing its strength very gradually, so as to produce no shock. In the case of "the unfortunate fireman," as he severs the wire, the whole force of an electric light system with an electro motor force of from 1,000 to 40,000 volts, is instantly flashed through the most sensitive part of his body.

4. The volt-force necessary to get a current of 100 milliampères through the tissues of the abdomen and fibroid tumor by the method I have described, if we allow that the resistance of the tissue between the electrodes is 60 ohms, the resistance of electrodes, conducting wires, galvanometer and battery at 200 ohms, will be not more than 26 volts; while the electro-motive force of the current that passes through "the unfortunate fireman," at the lowest estimate, if it overcomes 30,000 ohms, is 10,000 volts. Surely, can a current of 10,000 volt force be used with fairness to demonstrate that 100 milliampères is unsafe, where the resistance is so small that only 26 volts are necessary to give the same current?

5. Then, after all, if Dr. Engelmann's illustration should be considered of any value—and I think that I have demonstrated why it should not—his conclusion that death necessarily follows such a shock is not well grounded. While, occasionally, a death is reported from severing electric light wire, a number of well authenticated cases can be cited to each one of these, where the shock from the same cause produced but temporary inconvenience.

Dr. Massey, of Philadelphia, in his letter of May 14 on this line, after figuring the power of my battery to a maximum current of 40 or 50 milliampères, says: "But even 40 or 50 milliampères really used by Dr. Martin are strong doses, when applied to the delicate lining membrane of the uterus, or concentrated at a single point within the tissue." That is just where we are misjudged. If Dr. Massey had read my paper carefully he would have noticed that we *seek* to coagulate or liquefy (as the indications demand) the tissues with which the active pole comes in contact. If he realizes this, he must appreciate that this cannot be accomplished, in the majority of cases, by a 40 or 50-milliampère current.

Finally, in answering the criticisms of Dr. Massey made in his letter of May 14, and the criticism, in the same line, of Mr. H. L. Bailey in his letter of May 28, I wish first to make an explanation: The battery with which I do most of my office work consists of 115 gravity cells. Under ordinary circumstances, this accomplishes all that I require. However, connected with the same switch board I have 36 cells, manufactured by McIntosh & Co., of this city, called "improved gravity cells." Each one of these cells has an electro-motive force of 1.5 volt; these cells added make the combined electro motive force of my office battery 174 volts. Besides this power, which I find ample for all except extraordinary purposes, I have been indebted to Dr. McIntosh for additional apparatus whenever I have, for experimental purposes, found it necessary. I made this explanation, as I have no desire to mislead my readers, or to pose as a violator of Ohm's Law. However, from my 115 gravity cells I am able to get, and do get, a current of from 300 to 600 milliampères. The internal resistance of the battery is 230 ohms, instead of 1,150, as figured by Dr. Massey; the resistance of the tissues and electrodes is not more than 150 ohms. The electro-motive force of the battery is about 130 volts. By Ohm's Law we get $\frac{E}{R} = \frac{130}{380} = C = .342 +$, or 342 milliampères. If the resistance is less, as is often the case, the current will be correspondingly higher. By switching in my additional cells, representing 54 volts, I increase the current to 400 or 800 milliampères.

I wish to correct any impression, however, that I am using a current, at any time, that cannot be readily borne by a patient unanæsthetized. The current is turned on a cell at a time, with great care, until the required strength is reached. If the electrodes become painful before the required current is obtained, it must be carefully turned off and the elec-

trodes changed or rearranged, so that the required current may be obtained without pain. The greatest care must always be observed in the selection of electrodes and the proper manipulation of the current. Yours truly,

FRANKLIN H. MARTIN, M.D.

163 State St., Chicago, May 30, 1887.

BOOK REVIEWS.

MEDICAL ELECTRICITY. A Practical Treatise on the Applications of Electricity to Medicine and Surgery. By ROBERTS BARTHOLOW, A.M., M.D., LL.D., etc. Third Edition, Enlarged and Improved. With Illustrations. 8vo, pp. 304. Philadelphia: Lea Brothers & Co. Chicago: A. C. McClurg & Co.

This book, in its preceding editions, has been before the public long enough to be well known. All the works written by Professor Bartholow are deservedly popular, for they are clearly and well written. The present volume covers the usual ground gone over by treatises on this subject. Electricity, its nature and modes of manifestation, are first considered; then the means of generating it; later electro physiology, or its physiological action; and finally its use as a diagnostic and therapeutic agent. The additions to this edition have been chiefly to the sections on therapeutics. The portions devoted to electric illumination and galvano-cautery have been enlarged. Galvano-faradization and electric baths are also described. Without doubt this edition will maintain the popularity of the work.

MISCELLANEOUS.

NEW HAMPSHIRE STATE MEDICAL SOCIETY.—The ninety-seventh annual meeting of this Society will convene in the Opera House, North Main Street, Concord, N. H., Tuesday, June 21, 1887, at 11 o'clock A.M. The Councillors will meet in the office of Dr. Conn at 8:30 P.M. of the previous evening, June 20. Prof. Carlton P. Frost, Hanover, President; Dr. G. P. Conn, Secretary.

STATISTICS OF TYPHOID FEVER.—In an Amsterdam graduation thesis, by DR. M. NIEMEIJER, on the Statistics of Typhoid Fever, out of fifty cases in which complete observations were recorded, prodromata occurred in twenty five, rigors in sixteen, "cold shivering in one, pain in the left side in seven, diarrhœa in forty two, splenic enlargement in forty-eight, rash in forty seven, ileo cæcal gurgling in nineteen, and pain in the same region in twenty, bronchial catarrh in forty-three, albuminuria in twelve, in three of which cystitis followed. In sixty-three cases, relapses occurred six times. With regard to complications, out of seventy-three cases, intestinal hæmorrhage occurred in five; peritonitis in three, perforation occurring in two of these. Other complications were: pharyngitis, one; acute follicular sore-throat, one; parotitis, one; epistaxis, three; laryngeal perichondritis, one; pulmonary infiltration, thirteen; pleurisy with effusion, three; thrombus of the crural vein, one; acute nephritis, one, in a somewhat doubtful case; nephrolithiasis, two; herpes labialis, three; cutaneous hæmorrhage, three; periostitis of the tibia, one; joint-affections, three; meningitis, one; neuralgia of the sole, one; profuse perspiration, two; polyuria, one; mental disturbance, four; deafness, five; bleeding from the ear one. The total number of patients on whom observations were made was 194. Of these, twenty, or 10.3 per cent., died, the male mortality being decidedly higher than that occurring amongst female patients—12.5 per cent., as compared with 6 per cent.—*British Medical Journal*, May 7, 1887.

GASEOUS TREATMENT OF CONSUMPTION. — Dr. Henry Leffmann, Editor of *The Polyclinic*, (P. O. Box 791, Philadelphia), desires to obtain results of the new treatment of Pulmonary Consumption and Phthisis by gaseous enemata, *for publication in The Polyclinic*. The correct therapeutic value of this method can only be arrived at by the collection of statistics, and he therefore requests any one who has administered the gas to communicate the result to him, the formula used, and any special information that may be useful.

ABDOMINAL SECTIONS.—Professor Joseph Eastman, of Indianapolis, Ind., recently reported the results of twenty four cases of abdominal section with twenty recoveries. Four were operated on in the City Hospital, ten in his private hospital, and ten in private residences. In twenty-two of the cases the operations consisted in removal of one or both ovaries, and in fifteen of these, the tubes were included. The operation was exploratory only in one case, revealing encephaloid disease of the left ovarium and adjacent parts; and in the remaining case a fibroid tumor of the uterus was removed, weighing six pounds.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 28, 1887, TO JUNE 3, 1887.

Capt. H. O. Perley, Asst. Surgeon, relieved from duty at Ft. Maginnis, M. T., and ordered for temporary duty at Ft. Snelling, Minn. S. O. 49, Dept. Dakota, May 23, 1887.

First Lieut. Wm. N. Suter, Asst. Surgeon (recently appointed), ordered for temporary duty at Washington Brs., D. C. S. O. 122, A. G. O., May 27, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, DURING THE WEEK ENDING JUNE 4, 1887.

Bransford, John F., Surgeon, ordered to the Smithsonian Institution, at Washington, D. C.

Tryon, Rufus J., Surgeon, detached from the U. S. Str. "Quinnebaug," and ordered home.

Siegfried, Chas. A., Surgeon, ordered to the U. S. Str. "Quinnebaug."

Martin, Wm., Asst. Surgeon, detached from the U. S. Str. "Pinta," and ordered home.

Fitts, Henry B., P. A. Surgeon, detached from the receiving ship "Vermont," and ordered to the U. S. Str. "Pinta."

Field, James G., Asst. Surgeon, ordered to the receiving ship "Vermont."